American Aviation

25c *The Magazine of Air Transportation* APRIL 15, 1949

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Stab in the Back

WELL, the Civil Aeronautics Board has finally done it.

It has issued a death sentence without an arrest or a trial.

With the most brazen and shameless effrontery it has ever exhibited, it has reached a decision to terminate a feeder airline before the airline had even gotten into full operation. It has made a travesty of one of its own opinions, eliminated whatever judicial respect and procedures which it could lay claim to, and has drawn conclusions from a mere sprinkling of evidence.

by W. W. R.

The victim is Trans-Texas Airways, whose only sin is that it is owned and operated by a group of Americans who took the CAB at face value when they were given a three-year certificate to see what they could do to provide scheduled airline service over 2,048 route miles in Texas. Communists and traitors these days are given the greatest of judicial consideration, time and patience. But on the basis of the first 11½ months partial and developmental operations out of a promised 36, the reward to Trans-Texas for trying to do a job in the public interest is a telephone call passing on word of the death sentence.

Here is the story of a gross miscarriage of justice:

Trans-Texas Airways, then known as Aviation Enterprises, Inc., of Houston, applied for a network of feeder routes in the Southwest. It was a party to the Texas-Oklahoma case which was decided Nov. 14, 1946, by CAB Members Landis, Branch and Lee. Member Young concurred and dissented, and Member Ryan did not participate.

"In addition to the extensions of Pioneer," the CAB opinion said, "the record shows that there is need for additional local service within the State of Texas . . . As heretofore pointed out, lack of surface transportation has long been a major problem, particularly in the western part of the state. Consequently that section has relied greatly upon motor transportation, which is time consuming because of the great distances involved.

"Moreover, because of these distances cities in that section assume greater importance than cities of comparable size in more populous sections with more extensive transportation facilities . . ."

So the CAB awarded on that date a feeder net-

(*Turn to Page* 8)

Two Decades With United

William A. Patterson, president of United Air Lines, this month rounded out 20 years of service with UAL and predecessor companies and 15 years as top executive of the airline. Patterson left a banking position to become assistant to the president of Boeing Airplane Co. on April 1, 1929, and figured prominently in building the UAL system. Known as an outstanding 'personnel' executive, he has injected into his organization strong cooperative spirit between management and employes.

In This Issue

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American Aviation

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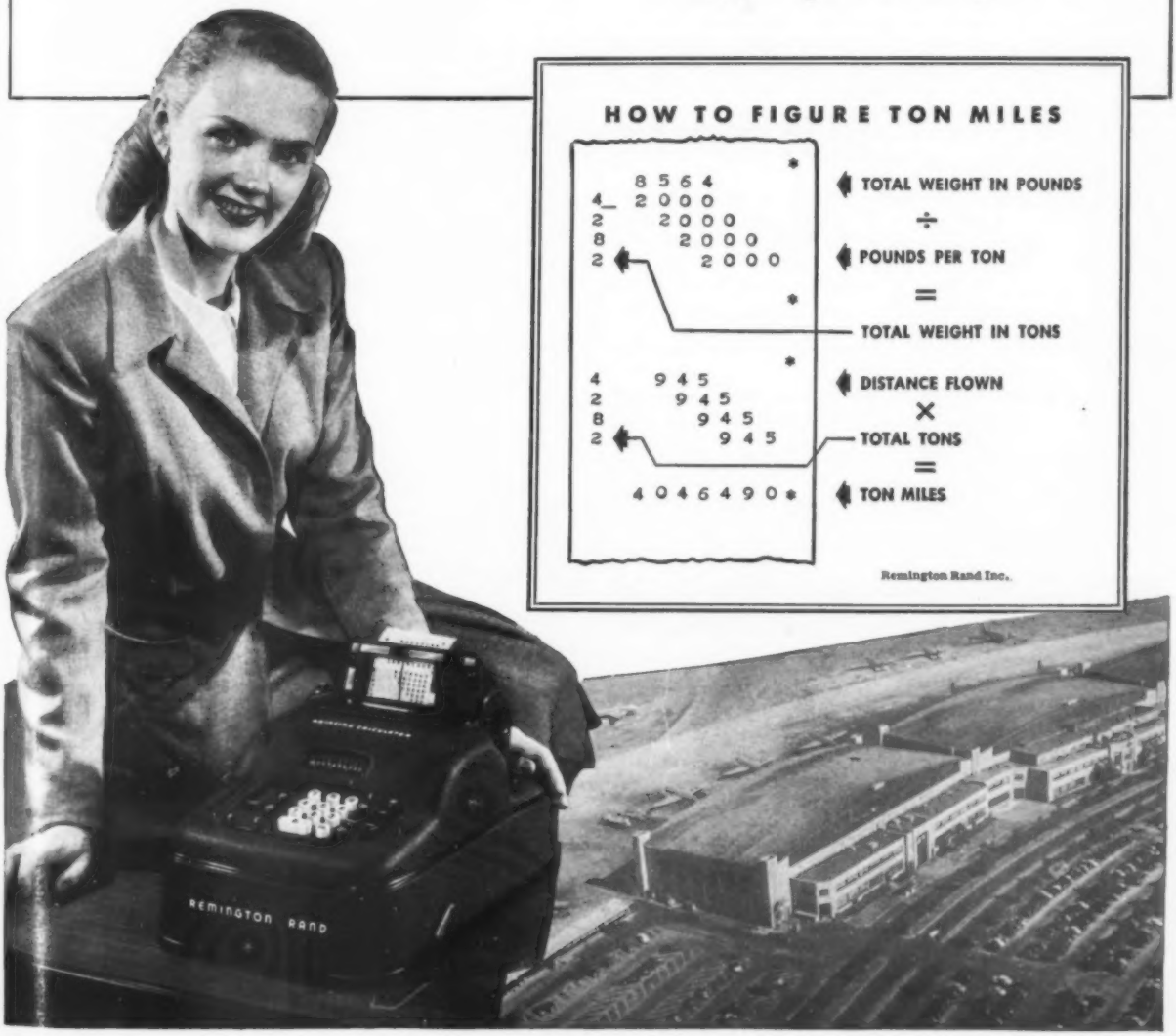

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News in Brief

Airline family fare plans have been allowed by CAB to continue another three months beyond expiration date of Mar. 31. Tariffs remain in effect through June 30.

Florida Airways, which ended its feederline service to 12 points on Mar. 28 in accordance with CAB order, lost another round on April 5 when CAB turned down its last-ditch effort to survive by combining its Route 75 with that of Southern Airways, Inc. CAB ruled that since Mar. 28 Florida had no route that might be merged with Southern. Florida's plans for disposal of aircraft and assets have not been disclosed.

I. W. Burnham II, of New York, and his attorney, **L. Welch Pogue,** former CAB chairman, have been elected to fill vacancies on Western Air Lines' board of directors. Burnham is a member of the N. Y. Stock Exchange and Wall Street firm of Burnham & Co. Both new directors represent the N. Y. brokerage group which recently purchased some 200,000 WAL shares sold by W. A. Coulter. Board vacancies filled were created by resignations of Coulter and Stanley R. Shatto. Latter continues as v.p.-maintenance and engineering.

Air mail pay would be separated from so-called subsidy elements in air transportation under legislation introduced by Sen. Edwin C. Johnson (D., Colo.), chairman of the Senate Interstate and Foreign Commerce Committee. Post Office would make payments for air mail carriage to airlines on basis of certifications from CAB, while "subsidy" payments would be made by CAB on basis of direct appropriations for this purpose.

With transportation tax repeal by Canadian government, all airline tickets sold in Canada, including those for travel into the U. S., are now cheaper by more than 13%.

Wisconsin Central Airlines' proposal to decrease system fares from 6.14c per mile to 4.91c has been suspended by CAB until June 29 to allow time for investigation.

Capital Airlines has made payment of $500,000 on its demand notes held by five participating banks. Remainder of loan ($2,500,000) is now off demand basis and comes due every six months, with next maturity date Sept. 30, 1949.

British Overseas Airways Corp. "is likely to buy" four Boeing Stratocruisers from ABA Swedish Airlines, with negotiations now underway, according to London press reports. Planes would be paid for in sterling. The deal, if consummated, would mark second time that BOAC has been able to buy U. S. planes without spending dollars. First case involved five Constellations.

BACKGROUND & TRENDS

Among the Airlines

Passenger traffic on domestic airlines was up nicely during the first part of April. Incidentally, past winter's traffic was exceptionally good, and final figures may show that increased revenues plus mail rate increases combined to give the airlines the best first quarter in history . . . Some airlines that have been giving passengers the opportunity **to carry their own baggage** on Convair and 202 flights have been somewhat surprised at the light response. Businessmen are carrying briefcases and sometimes light bags, but most passengers check ordinary suitcases through in the usual manner.

Wailing and griping of other airlines over **American Airlines'** advertisement "retiring" the **DC-3** could be heard 'round the world. It's a certainty that there are

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American Aviation

The Magazine of Air Transportation

Vol. 12 No. 22 ABC **April 15, 1949**

1025 Vermont Ave., N.W. Washington 5, D. C.
Telephone—STerling 5400 Cable—AMERAV

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WAYNE W. PARRISH

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American Aviation is published 1st and 15th of each month by American Aviation Publications, Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Mexico, Central and South American countries—$3.00 for 1 year; $5.00 for 2 years. Canada—$3.50 for 1 year; $6.00 for 2 years. All other countries—$4.50 for 1 year; $8.00 for 2 years. Entered as Second Class matter in Washington, D. C., and Harrisburg, Pa.

Publishing Corporation: American Aviation Publications, Inc., Wayne W. Parrish, president; Albert H. Stackpole, Eric Bramley, David Shawe, vice presidents; E. J. Stackpole, Jr., secretary-treasurer; John H. Poole, assistant secretary-treasurer.

West Coast Office: Park Central Building, 412 West Sixth St., Los Angeles 14, Calif. Trinity 7997. Fred S. Hunter, manager.

Correspondents in principal cities of the world.

Other Publications

American Aviation Daily (including International Aviation): Published daily except Saturdays, Sundays, and holidays. Subscriptions: $16 one month; $180 one year. Clifford Guest, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy $5.00. Dallas R. Long, managing editor.

Official Airline Guide (formerly American Aviation Air Traffic Guide): Monthly publication of airline schedules, rates and regulations. Subscriptions: U. S. A and countries belonging to the Pan American Postal Union, including Spain and the Philippines, $9.00 one year; Canada $9.50. All other countries $11.00. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. State 2-2154. C. N. Johnson, production editor.

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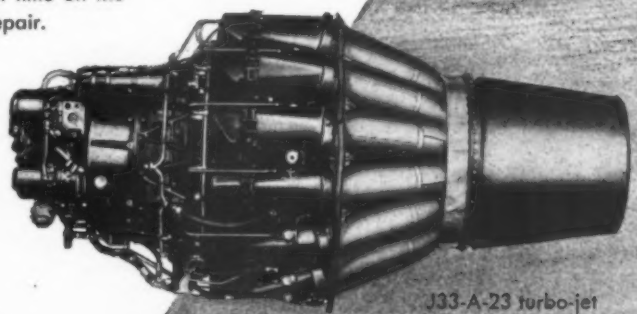

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BACKGROUND & TRENDS

(*Continued from page 4*)

more DC-3 schedules in the U. S. than all other airplane schedules combined. To many airline customers there'll never be a better airplane than the faithful DC-3.

Airlines are still hoping for compromise in Congress that will reduce **15% transportation tax to 5%** . . .

Airlines serving the south are pushing summer excursion fares as never before, and all are spending sizeable amount advertising them. Examples: **Eastern,** $250,000, and **Delta** $50,000 . . . **Southern Pacific** is taking a newspaper ad on the west coast to give **United, Western, TWA** and **California Central Airlines** a mild rap on the wrist for "unintentional inaccuracies" in quoting SP fares in their ads. Airlines were accused of quoting higher rail fare than is the case, and of giving a Pullman fare on a train that doesn't carry sleeping cars.

Trend to Watch

There's hardly a trunk airline in the industry that doesn't want to **get out of serving some of the small stops** to which they have been certificated within the past three years. Airlines asked for small stops as protection against feeder expansion, but most such stops have been costly to serve. Even secondary carriers want to abandon the smaller cities. There will be increasing action by airlines toward suspension requests, and in some areas feeder airlines will take over the service.

Air Mail Service

Air mail officials are quite happy about **air coach trips** which the domestic airlines have in operation. Reason is that they're at late hours and prove to be excellent mail schedules. Same officials are decidedly unhappy about certain airlines that haven't made much effort to time some of their departures and connections to accommodate the mail . . . If the Post Office is authorized by Congress to operate an unlimited number of **air star routes,** the PO may use such routes in areas where CAB might decide to discontinue feederlines. If there were a need for mail service in such areas, and the cost wasn't much over surface transport, PO thinks star routes, which would carry all classes of mail, would be a good bet . . . Latest PO estimate is that **fiscal 1949 mail payments** to domestic and international airlines will be $123,666,000, divided almost evenly among the two classes of carriers . . . PO has been informally discussing the possibility of putting out an **air post card** which would go anywhere in the world for 8c. Same rate would apply to picture postcards.

Air Transport Agreements

There's going to be a **U. S.-Canadian conference** before June 30 on the present air transport agreement between the two countries. And the Canadians are going to have some requests to make. Canada took over Newfoundland as a province on Mar. 31, and was going to discontinue U. S. airlines' Fifth Freedom rights (allowing them to pick up and discharge traffic) at Gander. U. S. informed Canada that it would be impossible to talk over the agreement before Mar. 31 and asked extension of Newfoundland rights to June 30. Canada agreed. But it's a good bet that there won't be a further extension unless Canada gets something in return. It's no secret that Canada wants Fifth Freedom rights at Hawaii on a Pacific route or similar rights in the U. S. on a route to Bermuda . . . U. S. has signed bilateral civil aviation agreements with **Finland** and **Panama,** now has 38 such agreements.

People

Juan Trippe, president of Pan American Airways, was on *Time* magazine's cover for Mar. 28, with a detailed story inside. Story says Trippe runs a "one-man show," is "his own persuasive, far-seeing secretary of state," and has one of the healthiest companies in the industry . . . **Brig. Gen. Donald L. Putt,** Air Force's director of research and development in Washington, has been sworn in as a member of the National Advisory Committee for Aeronautics. He replaces **Maj. Gen. Edward M. Powers,** USAF, who has retired from active duty . . . **Peter Redpath,** executive vice president of Scandinavian Airlines System, Stockholm, has been visiting friends in the U. S. and was given a reunion party by his former TWA associates in Kansas City. Redpath, who was recently awarded the Vassa order in Sweden, has done an outstanding job with SAS since its inception . . . **Clive Adams,** general traffic manager of British European Airways, has been in this country studying air transport facilities and operating procedures.

James H. Smith, Jr., has resigned as vice president-Atlantic division of Pan American Airways. A successor has not been named, and Smith's future plans are not known . . . **Tom Davis,** president of Piedmont Aviation, Inc., has been awarded the Frank E. Dawson Memorial Trophy for making greatest contribution to advancement of aviation in North and South Carolina. Award is made annually by the Carolina Aero Club.

Miami Commuter

CAB Vice Chairman Oswald Ryan is practically commuting between Washington and Miami this winter. He showed up there first for the air maneuvers early in January. Then came the famous PAA Stratocruiser trip in March. During the week of Apr. 4 he was back there again, this time ostensibly on vacation. The only one of the original CAB members now on the Board, Ryan is easily the most influential member and dictates, far more than even his colleagues realize, the bulk of CAB decisions and thinking. His power has often been underestimated in the past, but he may well be more in the limelight from now on than ever before. His confirmation by the Senate for another six-year term is now in the bag. Ryan owes his re-appointment to Louis Johnson, new Secretary of Defense.

Continues Downward

Preliminary first quarter figures indicate no slackening of the downward plunge of **lightplane production.** Output which has been halved each year since the war, again is about half of the preceding year. First quarter '49 total is estimated at about 750, compared with 1,472 reported by members of AIA's Personal Aircraft Council for same period last year. However, 4-place planes represent 71% of '49 shipments, compared with 45% a year ago . . . An article on **reckless private flying** in April Cosmopolitan magazine will no do good for the industry. It is titled "Damn Fools in the Air" and the sub-heading, not borne out by the article itself, reads: "There are no stupider people anywhere than those who fly private planes. Stupid? They are vicious, criminal damn fools. Let's get rid of them before they give a black eye to organized air service." Article, written by J. C. Furnas, apparently was intended to be constructive, but headlining has stirred storm in lightplane circles.

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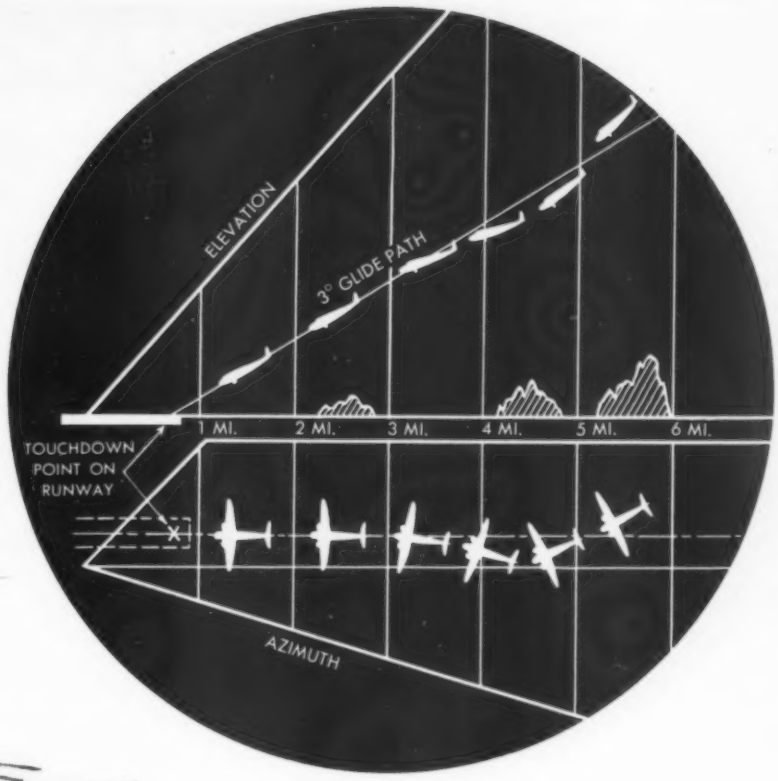

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*Ground Controlled Approach

GCA *Gilfillan* LOS ANGELES

EDITORIAL

(CONTINUED FROM PAGE 1)

work of 2,048 miles to Trans-Texas. Assured of three years in which to prove the feasibility of feeder service in this area, R. Earl McKaughan and his associates set to work to build up a creditable airline.

Only 67 miles of its routes were equipped with federal airways, so homing beacons had to be built and installed by the airline at many points. DC-3's had to be purchased and overhauled. Flight and ground crews had to be secured and trained. A maintenance base had to be set up. Instead of hiring sales and publicity personnel, Trans-Texas decided to build soundly, economically and conservatively. It decided to build its basic operating service, then sell it to the public when it had a saleable product.

It was on Oct. 11, 1947, that the first two segments were put into operation. Gradually new services were opened until on Dec. 7, 1948, all parts of the big system had at least one round-trip per day. Finally on March 6, 1949, the route structure was completed with two round-trips per day. On March 15, 1949, Trans-Texas completed a brand-new traffic and sales department. It was finally ready to show what it could do between then and May, 1950, when its three-year certificate expired.

On April 4, 1949, the CAB issued a show cause order on Trans-Texas. It didn't suggest a fair trial and review. It just said "we have reached the tentative decision that Trans-Texas' certificate should not be renewed" and stated that it intended to close up some of the routes and turn the remainder over to Pioneer Air Lines.

Two facts are important in this. One is that the *only figures used by the Board in its decision were for the first 11½-month period ending Sept. 30, 1948,* when only partial service was in existence. The second is that the *CAB reached its conclusion before Trans-Texas had completed its service pattern* and before it had organized its traffic and sales department, since it is well known that CAB decisions are reached many weeks before they finally appear in print.

The day the CAB issued its show cause order, an El Paso newspaper carried a headline: "Pioneer Extended—Trans-Texas Airways Told to Quit." Fine encouragement for a new sales organization, fine reward for personnel who thought they had time to make a showing, a fine stab in the back to a group of Americans who took a federal agency at face value! A more iniquitous, immoral or wicked development can scarcely be imagined in air transport regulatory history.

"I might say," said CAB Chairman Joseph J. O'Connell, Jr., in a New York speech recently "that my chief concern over mail pay is whether or not it leads airline management to behave like businessmen and to make decisions as businessmen normally do."

After such a preachment as the above, the CAB might well explain the gross indignity and injudicious manner in which it has acted arbitrarily to knock down an airline that was just getting ready to stand up. Three year experiment! What a hollow mockery!

Perhaps Trans-Texas was not destined to "make the grade." Certainly we, among others, have criticized the Board from the start for the manner in which it undertook the so-called feeder experiment. But it gave a three-year certificate to Trans-Texas and Trans-Texas is entitled to a full and fair trial. By the CAB order of April 4, 1949, it has not had a fair trial or anything like it.

The CAB, after knocking its victim senseless and creating newspaper headlines all over Texas, tells it to continue until the expiration of its certificate in May, 1950. After working night and day to build up a scheduled airline service meeting all of the CAA requirements demanded of trunk lines, Trans-Texas can only wonder at the kind of regulatory justice to be expected from an agency created by Congress "to foster and encourage the development of an air transportation system properly adapted to the present and future needs of the foreign and domestic commerce of the United States, of the Postal Service, and of the national defense."

Tale of Two Viewpoints

THE POST OFFICE Department is meeting itself coming backwards these days. It ought to make up its mind what its official position is with regard to the helicopter.

Currently the P. O. is distributing free to all askers a brief history of air postal transport. It's a good little brochure that pats the P. O. Department on the back, as it should, for promoting the air mail service. Here are some quotations:

"Despite the many gains that had been made in the transmission of mail by air, it was recognized that in numerous instances—particularly in large metropolitan areas—it took longer to dispatch and deliver mail to and from the airport than to transport the mail over great distances by air. Slow surface transportation was negating the speed of the airplane. Because of its ability to land, or hover, over a small landing place—on the ground or rooftop—the answer to this transportation problem seemed to lie in the helicopter.

"And so, in July, 1946, the Post Office Department, in cooperation with the War Department, conducted exhaustive tests in and around Los Angeles, Calif., of the carriage of air mail by helicopter between the airport and surrounding communities. Further tests were conducted at Chicago, Ill., in October of that year, and again in New York City in February 1947. These tests demonstrated the practicability of this means to speed up the delivery of air mail to cities and towns near a metropolis, in some cases by as much as 19 hours over surface transportation."

A very good selling job for the helicopter.

But how does the P. O. explain the determined drive by Paul Aiken, Second Assistant Postmaster General, in opposing before the CAB the proposed helicopter mail service in the New York area—and the determined opposition which Aiken took against the Chicago area service which the CAB recently authorized? Mr. Aiken ought to get together with the historians who prepared the excellent brochure on the air mail service. Helicopter service in metropolitan areas is an unqualfied success and Mr. Aiken seems to be having a difficult time digging up reasons to oppose it or lining up his own Department behind him.

WAYNE W. PARRISH.

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American Aviation

Volume 12
Number 22

Domestic Airline Loss Cut To $4.3 Million in '48

By Keith Saunders

Six months ago, any prediction that the 16 domestic trunk airlines would lose under $10 million for calendar 1948 would have been regarded as brashly optimistic. Even at the end of the year, an Air Transport Association prediction that the domestic loss would be under $12 million, exclusive of retroactive mail pay grants made in December, caused some lifting of eyebrows.

As it turned out, the combined loss of the 16 trunklines was only $4,329,000, which was about 80% under the record 1947 loss of $20,487,000. It was, in fact, the best financial year the domestic carriers had experienced since 1945. Even in 1946, when their postwar troubles were just starting and before expenses had climbed to anywhere near present levels, they had lost $7,000,000.

A remarkable feature of last year's domestic trunkline operations, according to official revenue and expense reports just filed with the Civil Aeronautics Board, is the fact that they showed an *operating profit* as a group on total operating revenues of $420,115,000 and total operating expenses of $417,495,000. Only debt and interest payments and income taxes threw the group into the red for the year. Considering last year's high operating and maintenance costs and high depreciation charges, this was a major accomplishment.

Nine in Black. The net financial results of nine of the lines for 1948 were written in black ink, whereas 14 of the 16 had shown net losses the previous year. Only Mid-Continent and Eastern showed profits in 1947, whereas the 1948 profit column included Braniff, Capital, Chicago and Southern, Continental, Delta, Eastern, Mid-Continent, Inland, and Western.

Eastern again was the top earner with a net of $2,347,000. Biggest deficits were those of American, Northwest, TWA, National and United.

A substantial portion but by no means all of the improved earnings record of last year was attributable to the retroactive mail pay grants made in December and again in February of this year. Mail payments for the year totaled $41,171,000, an increase of 110% over the original 1947 figure of $23,327,000. However, this percentage of increase will be lowered materially when the 1947 mail revenue figure is adjusted to reflect retroactive pay for that year.

Total operating revenues for the year were up $68 million or 19.1%, while total operating expenses were up only $44 million—from $373,354,000 in 1947 to $417,495,000 last year.

Passenger Revenue Up. Bulk of the increased operating revenues came from passengers, the gain in this category of revenue being from $303,192,000 to $341,006,000. Fare increases accounted for this gain, since total passenger traffic was actually down a little last year.

Freight and express revenues combined amounted to $24,037,000 last year, up 27.3% over the 1947 figure of $18,889,000. Exclusive of mail, cargo showed the greatest percentage increase of any category of revenue last year.

Revenue gains were not the whole picture, however. The brightest achievement of the domestic trunklines last year may have been in holding total operating expenses to an increase of only 11.8% despite substantial increases in wages and salaries and in costs of equipment and supplies.

Four Reduce Expenses. Special credit was due Colonial, National, Northeast, and Western for actually reducing total operating expenses last year, while Capital, Braniff and several others held expenses down almost to 1947 levels.

While passenger revenues were much higher last year than in 1947, they accounted for only 81.2% of total operating revenues last year, as against 86% the year before. Cargo revenues last year represented only 5.7% of the total revenues, as compared to 5.3% in 1947. Mail revenues showed the greatest percentage increase, going from 6.6% of total operating revenues in 1947 to 11.7% last year.

Significant to note, in this connection, is that mail pay of the domestic trunklines has represented a lower percentage of total operating revenues in only two previous years, 1946 and 1947, when it was 10.8% and 6.9%, respectively. Last year's percentage was less than half of the 24.7% ratio for 1941, the last pre-war year.

What made the 1948 financial results more remarkable was the fact that the 16 carriers had gone into the final quarter of the year in the red by about $12,000,000. There has been no opportunity yet for analysis of fourth-quarter figures to determine the specific effect of retroactive mail payments on results for that period. But the domestic trunklines must have come close to breaking even on the quarter's operations instead of losing about $10 million, as they had done in the final quarters of 1947 and 1946. This is extremely encouraging, and continuation of the trend should mean much improved financial reports for the first quarter of the current year.

Domestic Airline Profit-Loss Results for 1948

(Compiled from Official Reports to CAB)
(000 omitted)

Carrier	Total Oper. Revenues	Pass. Revenue	Mail Revenue	Frt.-Exp. Revenue	Total Oper. Expenses	Net Profit or Loss 1948	Net Profit or Loss 1947*
American	$ 85,744	$ 73,756	$ 4,653	$ 6,202	$ 87,459	-$2,597	-$ 2,599
Braniff	13,509	10,661	2,074	547	12,846	420	-1,149
Capital	23,325	16,122	4,905	1,733	22,490	124	-2,652
C & S	10,453	7,108	2,802	378	9,564	639	-758
Colonial	3,582	2,458	1,053	43	3,556	-46	-958
Continental	4,879	3,256	1,363	105	4,598	184	-100
Delta	14,365	10,326	3,258	626	13,174	858	-475
Eastern**	66,487	60,679	2,977	2,653	61,370	2,347	1,373
Inland	2,271	1,564	651	42	2,090	116	-28
Mid-Continent	6,920	5,495	1,208	140	6,718	104	48
National	7,376	5,485	1,449	250	8,943	-1,718	-725
Northeast	4,644	3,242	1,272	107	5,109	-531	-1,304
Northwest	23,250	18,421	3,425	1,170	25,891	-2,066	-954
TWA	61,868	49,257	7,770	3,773	61,196	-1,135	-5,542
United	83,241	66,926	8,826	6,000	84,236	-1,052	-3,747
Western	8,201	6,250	1,485	268	8,255	24	-917
TOTAL—1948	**$420,115**	**$341,006**	**$49,171**	**$24,037**	**$417,495**	**-$4,329**	.....
TOTAL—1947	**$352,495**	**$303,192**	**$23,327**	**$18,889**	**$373,354**	.....	**-$20,487**

* Unadjusted for retroactive mail payments.
** Figures taken from annual report. CAB report not available.

Tough Feederline Policy:

Trans-Texas Feeder Marked For Extinction by CAB

By DANIEL S. WENTZ II

Continuing its announced policy of washing out what it considers to be feederlines without an economic future, CAB last week marked Trans-Texas Airways as the second local carrier due for extinction. The first, Florida Airways, ended operations on Mar. 28.

At the same time the Board proposed to extend the operating lives of Southwest Airways and Pioneer Air Lines for five more years, and to strengthen their routes in various ways.

To help Southwest, United Air Lines has been asked to submit to suspension for a five-year period of several small points it serves in California.

Similiar suspensions are sketched out for Braniff, Continental and American for the benefit of Pioneer, which in addition, is slated to inherit some mileage from Trans-Texas when the latter disappears as of May, 1950.

The Board announced its ideas in the usual form of a series of show cause orders. It included an opinion on what its ideas about the feederline picture are and what it believes to be needed steps for improvement. It should be emphasized that none of its proposals are final and that a great many changes in the plan may occur before it finally goes into effect.

SWA Outlook Good. Briefly, here is what the Board proposes. Southwest is to be given a further five-year trial period beyond Nov. 22, 1949, when its present certificate is due to expire. Although Southwest's cost to the government has been considerable (about $1,500,000 per year), CAB thinks that the value of its services has been so substantial "and the outlook for improving its economic position appears sufficiently encouraging to warrant another period of experimentation."

To improve its revenue/expense relationships, the Board wants to eliminate "uneconomic competition" at Eureka, Red Bluff, Monterey and Santa Barbara, Calif., by suspending UAL's certificate to serve those points for five years.

Longer Pioneer Trial. Pioneer, like Southwest, has required substantial government support (about $1,364,000 per annum), but CAB thinks it worth a further five-year trial period. Its certificate is now set to expire on Nov. 14, 1949.

To improve Pioneer's competitive situation, CAB is proposing a series of suspensions of service by competitive trunklines. It wants to suspend Braniff's service to Waco and Lubbock, take American out of Midland-Odessa, and suspend Continental's service to Big Spring Texas, all for five years.

In addition, it proposes to eliminate the Amarillo-El Paso segment of Pioneer's route because it has been showing a very low load factor and exhibits little indications of improvement. The Board considers the Albuquerque-Lubbock segment of Pioneer's route somewhat dubious, but thinks it worth trying for another year. To help the segment, it proposes to suspend Continental's authority to serve Las Vegas, N. Mex., for a year while Pioneer tries to build up the segment.

CAB also proposes to extend the Dallas-Waco-Temple portion of Pioneer's Dallas-Houston route so as to create a Temple-Austin leg alternate to the Temple-Bryan-Houston leg. In addition, it proposes to add Temple and Bryan as alternate intermediates between Austin and Houston. By so doing, the Board intends to eliminate Pioneer from direct Austin-Houston operations, leaving that route wholly to Braniff's trunkline service.

Ax for Trans-Texas. Trans-Texas did not receive such consideration. CAB feels that the cost of its operation to the government is disproportionate to value of the carrier's service, and that there is little, if any, likelihood of any material reduction in the cost of its services. Accordingly, CAB proposes to let it expire when its certificate lapses on May 13, 1950.

CAB said Trans-Texas might be helped somewhat by having exclusive operating rights over segments where it now competes with Braniff and Pioneer, but that these segments are important enough to warrant full trunkline service and the "grant of exclusive service to Trans-Texas would by no means cure that carrier's ills."

Pioneer would get the intermediate stops Trans-Texas now serves between San Angelo, Fort Worth and Dallas, as well as the Dallas-Houston segment of Trans-Texas' route.

Feeder Policy. Included with CAB's opinion was a general essay showing CAB's views on what the feeders have done thus far and what can be done to improve their lot.

"From information now before the Board," the document said, "we are of the general opinion that feeder service should seldom if ever be competitive. The traffic potential is so limited in most feeder territory that duplicate operations by two or more carriers can seldom, if ever, be economical.

"We have reached the conclusion that in general, where a feeder carrier's route is duplicated by a trunkline carrier and such route is not necessary to the trunkline carrier's operation, then such route should be served by the feeder carrier alone."

This doctrine is not likely to prove

40% More Payload—Bell Aircraft Corp.'s improved general purpose helicopter, the Bell 47D1, takes off carrying three passengers and a 500-pound payload. It's the first Bell commercial model to carry such a load, which is 40% over previous models. Empty weight of 1,380 pounds is approximately 150 pounds less than that of its predecessor, the Bell 47D. It will hover motionless at 10,000 feet, an altitude increase of almost 100% over previous models. The ship will sell domestically for reduced price of $23,500.

very palatable to the trunklines asked to step aside in favor of feeders who are comparative newcomers in the business. And by implication, at least, it is rather strong criticism of the wisdom of earlier Civil Aeronautics Boards who apparently lacked the wisdom to see that this would be the case at the time when feeders were being created wholesale.

Improving Traffic. CAB cited six ways in which it thinks feeder traffic can be encouraged:

(1) elimination of stations which notably lower the average station traffic volume because of their own unfavorable characteristics or because of their adverse effect upon the carrier's general service pattern;

(2) exemption from the necessity of serving certain stations on all flights irrespective of their relative traffic requirements;

(3) elimination of certain highly uneconomic parallel competition;

(4) revision of route patterns to permit more advantageous scheduling;

(5) extension of routes to include logical major traffic centers not presently served by feeders; and

(6) elimination of stations located at uneconomically short distances from traffic center stations.

Court Reverses CAB Route Award to Piedmont Airlines

The Civil Aeronautics Board, already burdened with more pending decisions than it knows what to do with, had a two-year-old decision rise up out of the past last week to haunt it.

It was the Board's decision in the Southeastern States Case awarding a feeder route to Piedmont Airlines rather than to State Airlines, a decision the latter had carried to the U. S. Court of Appeals for the District of Columbia. When the Court finally got around to deciding the case on April 6, it reversed CAB's decision and sent the case back to the Board "for further proceedings not inconsistent" with its opinion. What the latter phrase meant, not even a Philadelphia lawyer could determine.

The case arose from the fact that CAB had given Piedmont a route substantially like that for which State had applied but for which Piedmont had not applied. Piedmont's application had listed certain route points it desired to serve "and such other points as the Board may see fit" to award it. CAB used the catch-all phrase as a basis for awarding the feeder route to Piedmont, which it deemed more "fit, willing and able" to properly serve the route than was the other applicant, State. Said the Court:

"We think it completely obvious that Piedmont did not, in fact, specifically apply for the routes . . . no reasonable mind could conclude that the routes awarded . . . were merely a modification of the routes proposed (by Piedmont) . . . it is not difficult to believe that Piedmont was the most surprised applicant of all when the Board announced its decision.

"We expressly rule that the Board's findings . . . were, in the legal sense, arbitrary and capricious and lacked the support of substantial evidence.

What might happen next was anybody's guess, but something certainly had to happen. State Airlines might ask the Court for clarification of the phrase "further proceedings not inconsistent" with the decision. CAB, having been reversed, might appeal to the Supreme Court. Or Piedmont, having operated its route in good faith for nearly 14 months and having invested substantial sums in developing and operating it, might appeal.

Do Mail 'Subsidies' Destroy Incentive For Airline Management?

Have air mail "subsidy" payments led to the "atrophy of the ability of airline management to behave like businessmen" and destroyed the incentive for airline management "to make their decisions as businessmen normally do?"

Chairman Joseph J. O'Connell, Jr., of the Civil Aeronautics Board, gave voice to these private misgivings before the Association of the Bar of New York City in late March.

O'Connell

It wasn't the amount of mail pay subsidy that worried O'Connell. Total mail payments to the airlines for 1949 will run at an annual rate of $125,000,000 (up from $94 million last year), much of which represents reasonable compensation for services rendered and much of which is no net drain on the taxpayer because of offsetting balances in air mail postage sales. And the entire sum is "considerably less than we are spending to support the price of Irish potatoes," O'Connell pointed out.

What primarily concerned him was "the effect of subsidy per se."

Cost-Plus Operation

Expressing doubt that some of the air carriers of the U. S. have what might properly be termed an economic management, O'Connell said the Board's large mail rate case backlog plus the device of the protective rate petition "makes it possible for carriers, in effect, to elect to operate on a cost-plus basis, from which most incentive is absent."

He said the sliding-scale rate formula helps control operation of excess capacity, but this incentive "is greatly weakened by the ability of the carriers to file protective rate petitions. The usual economic consequences of over-production in industry and in other public utilities thus do not impinge on airline managements. The inevitable result has been, is and promises to be the operation of excess capacity, the costs of which are borne by the government."

Pointing out that mail rates also provide little incentive for a carrier to make sure its routes are most economically laid out or that uneconomical points are eliminated, O'Connell express grave concern because in no instance during his chairmanship has any carrier asked to abandon an uneconomical route. He agreed it is CAB's job to set a sound pattern, but said the carriers must help and are not likely to assist without some CAB prodding.

O'Connell said also that incentives to sound financing on the part of airline managements are few, and cited the growth of airline debt since the war to prove the point. Such incentives are lacking, he declared, because the Civil Aeronautics Act "tends to operate as a shield between the air carrier and the ultimate in economic penalties—bankruptcy."

Stronger Astringent Needed

Describing bankruptcy in private enterprise as "the principal astringent we have for washing away uneconomic operations," he said this astringent in the air transportation business as it is conducted today is "no stronger than water."

"We have reached the point where we must give serious consideration to the question of how to provide the economic incentives to air carrier management about which I have spoken and which appear to be lacking now," said the Board chairman. "If we do not start to explore the ways in which these incentives may be provided, our air mail pay bill can be expected to continue to rise, but what is far more important, we may seriously and permanently undermine the economic soundness of our air transportation business because of the atrophy of the ability of airline management to behave like businessmen."

O'Connell said the Board already has initiated moves to correct this situation in its 1949 Economic Program, which is designed to work toward "re-creating an atmosphere and a legislative framework in which air transportation can move forward on sound economic lines."

Two early steps to be taken, he said, will be separation of subsidy from fair costs of mail carriage and elimination or control of carriers' ability to file protective mail rate petitions.

Airport, State Officials Say 'No':

Should Federal Government Operate Major Terminals?

Should the development and maintenance of major air terminals be a Federal instead of a local responsibility? The answer to this provocative question, judging from results of an AMERICAN AVIATION poll of representative airport directors and state aviation officials, is an emphatic "NO."

The question was raised recently by Gill Robb Wilson in his much respected column, "The Air World", in the New York *Herald-Tribune*. In one column, he wrote that "terminal considerations of air commerce are unique in the history of air transportation . . . wherever the big, fast airliner sits down to lace together either the domestic necessity of a nation or the international necessities of various nations there must be a great airport. The required number is extensive. The considerations involved are essentially national and international rather than local.

"One of the original mistakes of American air commerce was allocation to municipalities of the responsibility for air terminal developments and operations."

In a subsequent column, Gill Robb commented: "There is an answer to the maintenance and operating costs of airports. There is no answer to the amortization of their developmental costs any more than there is a direct answer to the amortization costs of the public highway systems or marine facilities.

"This," he continued, "is one of the basic reasons why air terminals committed to civil commerce and, by their very nature, to national security should be Federal in ownership and administration."

Reaction. The answers of the state and city officials polled boiled down to these considerations:

(1) It would be difficult to know where to draw the line on what airports are important to the national commerce and the national security, with the result that several thousand airports might qualify, which would create stupendous problems.

(2) It would be difficult to prevent airports from becoming a "pork barrel" item like rivers and harbors once the Federal government aassumed the costs of their development, maintenance and operations.

(3) This would be a move toward nationalization of the air transport industry, which should be strongly resisted.

(4) Extension of Federal responsibility would mean multiplication of red tape, bureaucracy and waste, which also should be resisted.

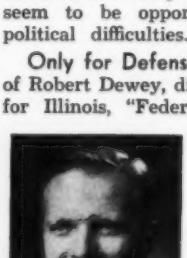
Step Toward Socialism. Crocker Snow, director of aeronautics for Massachusetts, takes the view that the idea of Federal ownership of air terminals "has theoretical merit but is practically inadvisable" He said that basically it would be another step toward socialism, and he is opposed in principle to any further movement in that direction.

Snow

"Specifically," he wrote, "I am afraid it would tend to freeze the present pattern of air commerce, because development would almost certainly be based upon existing population and associated statistics," and also would remove the competitive factor . . . "which has historically proven to be the greatest incentive to progress."

Possibly the most obvious drawback, he added, would be from an administrative standpoint. "It would be extremely difficult to draw the line between those airports to be Federally owned and those to be locally owned. There would seem to be opportunities for endless political difficulties."

Only for Defense. In the opinion of Robert Dewey, director of aeronautics for Illinois, "Federal responsibility for and control over the establishment and operation of civil air terminals can be justified only if we are prepared to believe that exigencies of national defense require such action. If such is the case, then the military should assume that further responsibility."



Dewey

He warned, however, that the "inevitable concomitant" to further extension of Federal responsibility for civil air terminals, whether by the military or otherwise, is "regulation, red-tape, bureaucracy, high cost and waste from the standpoint of civil air commerce."

Furthermore, Dewey said, the location, use and cost of air terminals is so intimately connected with the kind, nature and extent, as well as the feasibility and financing, of air carrier service "as to compel the belief that an extension of Federal control over such terminals would require an extension of Federal control over the air carriers."

To John A. Casey, supervisor of operations and airports for the Chicago Department of Public Works, the main trouble with the operation of airports has been and is "the attempt of too many agencies in suggesting and trying to put faulty ideas into practice." He thinks "if the cities were permitted to operate the airports as they see fit, the operation of air terminals would be much more efficiently handled."

Local Institution. Clarence M. Young, manager of airports for the City of Los Angeles and a former member of the Civil Aeronautics Board, considers the matter both from the viewpoint of municipalities and that of the airlines.

Young

Seeing a program of Federal ownership and administration of air terminals as a further step toward nationalization of the air transport industry, Young foresees the alarming possibility that the No. 1 Federal representative at a given air terminal might soon become involved in dispatching procedures, ramp services, passenger handling, etc., and progress to the point of being local boss of the overall situation.

Col. Young stated that an important air terminal is more than just a place for aircraft arrivals and departures; it is a local business institution . . . it serves a great variety of local purposes, and it just has to be a local enterprise if it is to fulfill its mission.

Pointing out that there are 6,000 airports and air terminals in the U. S., of which some 2,000 are municipal in character and have qualified or will qualify for Federal aid, which appears to entail a potential usefulness in civil commerce and/or national defense, Young said a program of Federal ownership and operation of these airports would be a stupendous undertaking from the point of view of administration alone, to say nothing of the cost involved, and would require some very impelling reason to justify it.

Funds vs. Interference. He said most cities might welcome Federal funds for the development, maintenance and operations of their airports, but would balk if, in the process, they should completely lose their identity with those aspects of the situation which prompted the building of an air terminal in the first place, and are required to entrust their future in the air transportation picture to impersonal and bureaucratic treatment by whatever Federal agency might be delegated to administer the affairs of the airport.

Another question raised is whether

an air terminal Federally owned and operated would not be located, built, improved, maintained and operated from the point of view of military requirements rather than for that purpose it was basically intended to serve; that is, civil commerce.

J. H. (Jack) Gray, manager of Atlanta Municipal Airport, is of the opinion that municipally owned and operated airports with a Federal advisory set-up can operate more efficiently and more economically than airports under complete Federal control. He said the majority of the mistakes made in municipal airport development were mistakes that had been approved by the Civil Aeronautics Administration.

Gray

From the foregoing, it would appear that sentiment among the states and cities is overwhelmingly against further Federal encroachment in this field. A slightly different point of view, however, was expressed by Ceasar Cone, secretary of the Greensboro-High Point (N.C.) Airport Authority, who wrote:

"As you are aware, the operation of an airport is a difficult financial problem. Unfortunately, most of the users of the property expect subsidy. This is true with respect to commercial air carriers as well as most owners of private aircraft. This habit has arisen because of the past policy of the Federal government and also because of the enthusiasm of many municipalities.

"We look on an airport as a municipal undertaking only because nobody else will undertake it and if we could find an airline, the Federal government or any private individual or corporation who would be willing to provide this facility to this community, we would be more than glad to have someone else undertake this burden."

Five Airlines Raise Wages for 4,000

Wage increases for more than 4,000 airline employes, representing virtually every work classification, are provided in new contracts negotiated between the unions and five airlines recently. Here's the lineup:

Pan American Airways signed an agreement April 2 with striking radio flight officers for a $30 a month increase in pay and on $1,800 increase in severance allowance. The one-day strike had resulted in cancellation of all North Atlantic flights on April 1.

By increasing severance pay from $1,200 to $3,000, the company is believed to have made provision for future layoffs of radio officers who will not be needed as the company gradually completes installation of radio-telephone equipment on all of its aircraft. This was the issue which brought on the strike.

New AIA Head—Adm. DeWitt C. Ramsey, USN, retiring commander of the Pacific Fleet, will become president of the Aircraft Industries Association on July 1. He succeeds Oliver P. Echols, now chairman of the board of Northrop Aircraft, Inc.

The employes, represented by the Transport Workers Union-CIO, walked out early April 1 when PAA went ahead with its scheduled Boeing Stratocruiser flight from San Francisco to Hawaii with no radio flight officers aboard.

The pay increase granted by the new agreement brings top pay of radio flight officers to $610 a month.

Earlier, PAA had granted a wage increase of $12 a month to all of its 650 pursers, stewards and stewardesses in the $175 to $340 a month brackets. Included was retroactive pay of $10 a month from last Oct. 1 to Mar. 1 of this year. The contract was to become official upon ratification by TWU locals in Miami, New York, Seattle, and San Francisco.

Capital Airlines' co-pilots were granted wage increases and senior pilots were given additional paid vacation under a new contract negotiated with the carrier by the Air Line Pilots Association. Wage increases also were granted Capital's radio and teletype operators in its renewed contract with the Airlines Communication Employes Association-American Radio Association (CIO).

Co-pilots, formerly receiving $280 a month for the first six months and $440 a month maximum pay after four years of service, will be paid $285 monthly for the first six months of service and $555 a month after six years of service. Also, each co-pilot is to receive an additional $3 per hour for each hour of flying over 80 hours per month. There was no additional hourly pay for flying more than 80 hours per month under the old contract.

Senior pilots requested no increase in pay, but were granted three weeks vacation after 14 years of service, an increase of one week.

The communications employes were given a $15 a month increase retroactive to June 1, 1948, the new range of pay for teletype operators being $190 to $240 a month, and that for radio operators from $205 to $285.

Eastern Air Lines has signed an agreement bringing pay increases to some 2,400 mechanics, storekeepers and ground service employes represented by the International Association of Machinists. Increases average over 9c per hour and are automatic from the bottom to the top of the mechanical group. Mechanics will receive more than $1.75 per hour. Payment of more than $200,000 in back pay to employes is involved in agreement, retroactive to Oct. 16.

The Brotherhood of Railway and Steamship Clerks, Freight Handlers and Station Employes, which won recognition as bargaining agent for **Western Air Lines'** clerical employes, stations agents, ticket agents and cargo handling in a recent NLRB election, has negotiated a contract embodying pay increases for both salaried and hourly employes.

Employes covered by the agreement receive retroactive pay averaging approximately $12 per month for the period July 1, 1948, to Dec. 31, 1948, and an additional $5 increase beginning Jan. 1, 1949. The contract runs for one year and is renewable annually thereafter unless 30 days' notice is given.

All **Northwest Airlines** employes represented by the International Association of Machinists, except flight mechanics and flight kitchen personnel, will receive a 4½c hourly wage increase for all work performed between July 1 and Dec. 31, 1948, under terms of an agreement announced by a Presidential Emergency Board. A further increase of 6c an hour applies from Jan. 1, 1949.

Flight mechanics received a $17.50 monthly increase for the last half of 1948 and a further $7.50 monthly increase for 1949. Flight kitchen personnel were granted a 4½c hourly wage increase for work performed between July 1 and Dec. 31, 1948.

AA Vacates Ardmore

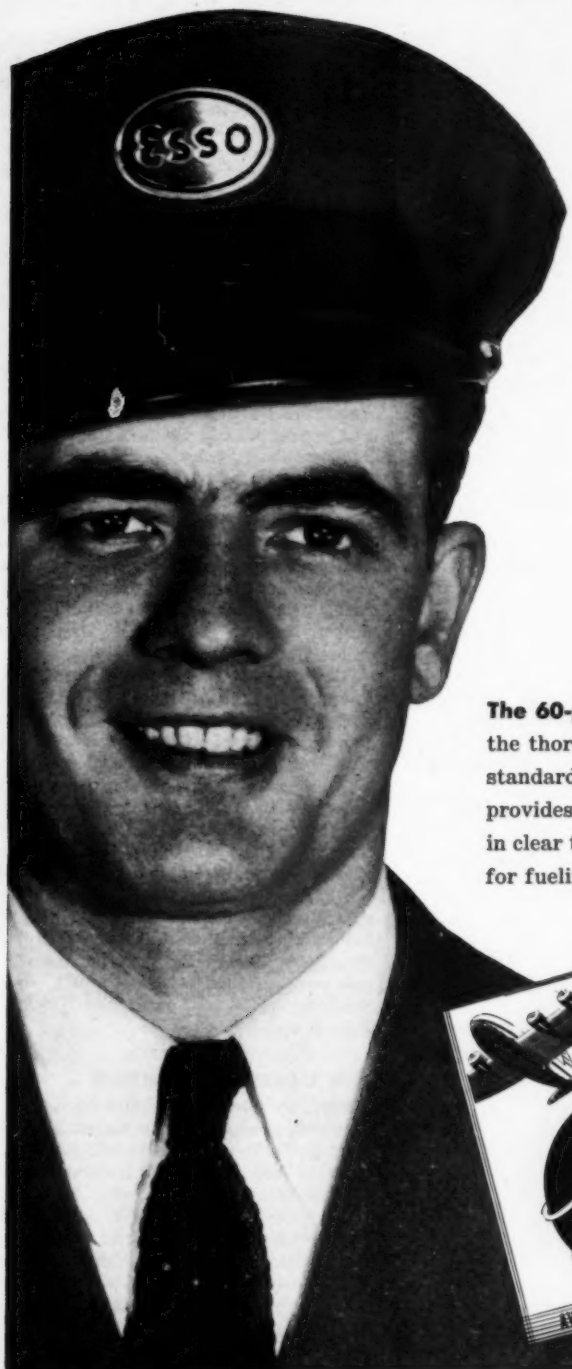
After completion of almost three years of training activities during which time 4,000 students were processed, American Airlines has closed its training center at Ardmore, Okla.

The wartime Air Force glider and heavy bombardment base, which AA rented from the city of Ardmore, was an economical method of accomplishing training while flight hours per month exceeded 200, but this is no longer the case. During the period that Ardmore was in use, average flight time exceeded 500 hours monthly.

AA's training center was headed by William T. Arthur.

In the future, American will carry on its training programs at the individual bases, as in pre-war years. A stewardess school will be maintained in American's new hangars at Chicago.

A MAN TO BE RELIED ON



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THE SAAB SCANDIA has many design characteristics attractive to small and medium-sized airline operators. In flight it bears close resemblance to the DC-3.

Saab Scandia Tests Value Of Long Pre-Service Period

For the past few years there has been increasing pressure in government circles to require longer testing periods for transport airplanes. American manufacturers and airline operators may find a key to the advisability of such extensive testing in the service experience of the Saab Scandia 90 A-2. The Scandia flew for the first time in November of 1946 and has been under constant testing since that time.

The Scandia is a twin-engined transport which can be arranged for 24 or 32 passengers. It is manufactured by Saab Aircraft Co., Linkoping, Sweden, and the first airplane has just completed a shakedown operation of 640 hours on regular Scandinavian Airline System flights between Stockholm and Rome. SAS has ordered 10 of the aircraft.

The Babb Company, Inc. has been named exclusive distributor for these transports in North and Central America. Babb's past record for salesmanship leaves little doubt that the Scandia will see service in this hemisphere. Vernon A. Dorrell, aviation consultant representing Babb, has left for Sweden to inspect the Saab manufacturing facilities and fly the aircraft. Dorrell was formerly vice president-operations manager of Mid-Continent Airlines.

First step in Babb's program will be to make market surveys in South and Central America.

Trade-In Deal. The Scandia is not a spectacular airplane. It does incorporate many design characteristics which will make it attractive to the small and medium-sized airline operators. The indications are that this will prompt its sale in Alaska and the rugged countries to the south. This is further enhanced by Babb's sales program which will follow that used by automobile sales agencies.

Most of these operators have a variety of equipment which represents a sizable portion of their capital. Babb expects to do more than sell the Scandia. The company will buy up the equipment which the airline wants to replace and provide "trade in" allowances. This will probably be the first time that this arrangement has been available. Somewhere in Babb's international operation there'll probably be an operator interested in the second-hand equipment.

The Scandia will go a long way in selling itself. It is a twin-engine airplane with tricycle landing gear and a passenger capacity of 24 or 32 depending on cabin arrangement. Maximum flying range with fuel reserves corresponding to ATA recommendations is 1050 miles. Fuel capacity is 765 U. S. gallons. It is the first transport to be powered by Pratt and Whitney's new R-2180 engines rated at 1650 b.h.p. at take-off, dry, or 1800 b.h.p. for take-off with water injection.

In flight the Scandia looks very much like the DC-3 (see cut). Its dimensions are like those of the DC-3 also, with a wing span of 91 feet 10 inches, a length of 69 feet 11 inches and height of 24 feet 3 inches. Wing loading is 35 lbs/sq. ft.

Straight Stall. Saab feels that the wing design is particularly desirable from the point of stall characteristics. Both in power-on and power-off stalls, the Scandia has a straight stall which starts at the wing root and extends gradually toward the wing tip. Stall warning is said to be ample. At an angle of attack of 15 degrees the airplane stalls at 96 mph.

Gross take-off weight of the Scandia is 32,408 pounds and maximum landing weight 31,967 pounds. At landing weight it meets CAR landing runway requirements on a 2950-foot strip. This is without reversible props. Empty weight is 20,608 pounds for both models, while the empty operating weight is 21,586 for the 24-passenger version and 21,298 for the 32-passenger model. This leaves a disposable load (payload, fuel and oil) of 10,840 pounds for the former model and 5,039 pounds for the latter.

At gross take-off weight of 32,408 pounds, the take-off distance (using water injection) is 1,935 feet. Rate of climb at METO power is 1,475 ft./min. and cruising speed at 10,000 feet altitude and 940 horsepower per engine is 250 mph.

In addition to these desirable operating characteristics, the Scandia also features luxurious passenger accommodations, simple cockpit arrangement, thermally deiced wings and empennage, electrically deiced windshield and propellers, steerable nose wheel, provisions for jettisoning fuel at the wing tips, and automatic fire extinguisher operation on crash landings.

The majority of the instruments are in dual, and the electrical system is arranged to minimize danger of system failures. The powerplants are interchangeable, left and right, all gears retract forward and the control surfaces are directly operated without boosters.

These are some of the factors which make the Saab Scandia an interesting aircraft. Only time will tell if the lengthy pre-service tests have managed to "de-bug" the airplane and make it a better airplane for civil use than other postwar transports.

Unequalled as Pest Fighter:

Helicopter Finding Good Market in South America

Thanks to the locust and to C. J. ("Tip") Tippett, the world's largest general commercial helicopter operation today is located, not in the United States, as one would expect, but in Argentina. And if currency exchange problems are ever resolved favorably, Tippett says, South America may well become the principal market for rotary-wing aircraft for civil uses.

Tippett, until recently, was technical director of Trabijos Aereos y Representationes, of Buenos Aires, which in the past 20 months has flown 13 Bell helicopters for over 4,500 hours in various types of commercial operations, principally pest control.

It was locust damage which prompted the organization of TAYR and which accounts for a large part of its business today, and half a dozen other South American countries are so impressed with the results TAYR has achieved that they, too, would welcome similar helicopter operations. The only thing holding up wide-scale helicopter operations throughout most of South America in Tippett's opinion, is the current dollar shortage.

Costly But Profitable. A combination of circumstances accounts for the fact that TAYR is making money despite unusually high operating expenses. Locust visitations are perhaps the worst type of plague Argentina has ever experienced, and the helicopter has proved to be the most effective scourge of the locust hordes that has been tried to date.

Locusts have long cost Argentines millions of dollars annually. Traveling in swarms as extensive as 75 miles in length and 25 to 50 miles across, they make a shambles of a cornfield, a pasture or a grove in a few days if not promptly and effectively attacked.

The Argentine government took this problem in 1946 to C. J. Tippett, chief of the U. S. civil aviation mission at Buenos Aires. On the basis of reports of initial helicopter crop-dusting operations in this country, Tippett had a hunch that rotary-wing aircraft might be the answer to Argentina's problem. There being several reasons for this.

Spraying from the ground was slow and ineffective because of the vastness of the locust hordes and the extensiveness of the areas covered. Furthermore, a lack of roads hampered movement of trucks and supplies to where the insects were. Dusting from light fixed-wing aircraft was effective but costly and inefficient because of the almost total lack of landing areas from which to operate the planes.

About the time the problem was handed to Tippett, Bell Aircraft Corp. had just begun production of its first helicopter adapted to crop-dusting operations, and "Tip" sent for all the available information on the rotorcraft.

Formation of TAYR. Result was the formation of TAYR with the backing of a group of wealthy Argentines. Tippett resigned from his CAA post to become technical director of the new concern. President was Juan J. Reynal, prominent Argentine rancher, while the position of managing director went to Horacio Cuirno Lavalle.

Tippett hired Wesley Moore away from Bell Aircraft to become chief of operations (Moore recently was hired as chief pilot for Helicopter Air Service, Inc., of Chicago). Pedro Rivas, an Argentine who had worked at the Bell factory for five years, went down to Buenos Aires to train TAYR's mechanics and then was hired by the company. Joseph Mashman was sent down by Bell to train pilots for the new company and found the Argentine pilots surprisingly easy to train.

TAYR started operations with three helicopters in June, 1947, and within a few months it had 11, all shipped in via Pan American Airways. It now has a total of 13 helicopters, including Bell 47B's, Bell 47B-3's and Bell 47D's, representing an investment, including spare parts and engines, worth nearly $500,000 on today's market.

Its helicopters are used in rescue work, for patrolling power lines and irrigation ditches, for malarial control work, and for exterminating locusts, Mediterranean fruit flies and other crop pests.

About 50% of its work has been for private companies and individuals and the remainder for the Argentine government, with which it has a contract for 2,000 hours of flying this year. Its rates are high, running up to as much as $400 per hour on some private contracts, but considering the number of acres a helicopter can dust in an hour it is cheaper than dusting by hand. It also must be remembered that TAYR has operating problems that are unusual and costly.

Difficulties of Operation. Because of the vast area which must be covered, the company has to conduct most of its operations with single-ship units spotted around the country at strategic locations. Crews sometimes stay in the field as much as three months at a time, although headquarters can maintain liaison with them through its two Stinson Flying Station Wagons and several JU-52's.

Gasoline is one of the big problems. It takes months to get it into inaccessible areas, especially if the rivers are low, and it has to be put in 5-gallon cans or in barrels for use in the field. It is 80-octane leaded gasoline, of such poor quality that it frequently clogs fuel lines and fouls spark plugs. Due to leading, it was necessary to change plugs after every three hours of operation, until a TAYR mechanic devised an improved type of bushing that slowed up the leading of the plug points. The company is now trying to interest Bell in adapting this as a replacement for the bushing it makes.

Maintenance problems are numerous.

'Copter Battles Locusts—This Bell helicopter is one of 13 being used in Argentina by Trabijos Aereos y Representationes in a variety of commercial operations, chief of which is spraying devastating hordes of locusts such as the one blackening the sky in above photograph. The 'copter is said to be the most effective weapon yet found for fighting these crop pests.

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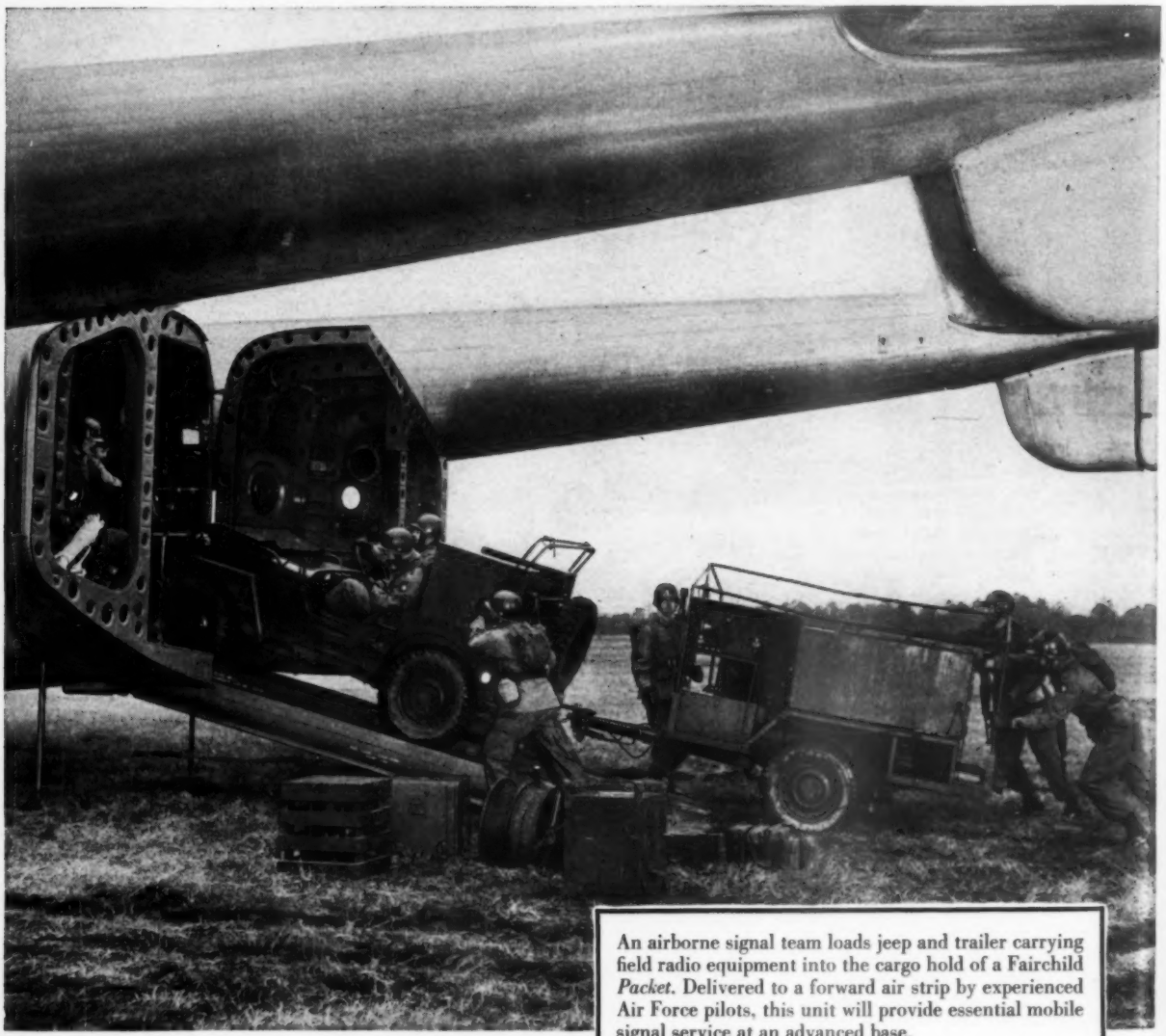

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Because the 'copters sometimes have to fly 600 to 800 miles to get to a job, they are almost ready for some overhaul even before starting to work. All maintenance is done in the field except complete engine overhaul, which is done at Pacheco Air Base, Buenos Aires. TAYR mechanics have even learned to make repairs to main rotor blades, and Rivas has devised a way of making a top overhaul of an engine in the field without taking it out of the machine. This saves considerable time and money.

Supply Problem. Because of transport difficulties, TAYR has to keep on hand a six-months supply of spare parts and engines. Even so, the company sometimes has to fabricate parts in an emergency, and its mechanics have become adept at this, occasionally making a part that functions even better than the original.

So impressed was nearby Brazil with TAYR's successes, that Tippett was called upon last summer to organize a company backed by Brazilian capital, aided by Nelson Rockefeller's International Basic Economic Corp. The company has the impressive name of Empresa Helicopters do Combate Pragas Agricolas Banderante. It has three Bell 47-D's and hopes to acquire more soon.

In about eight months of operation it already has dusted 11 million coffee trees to kill a small fly known as the *broca*, has dusted cotton fields for leaf hoppers and has done malarial control work, all with success. Marinho Lutz is president of the Brazilian company.

Other South American countries, with the same crop pests and the same conditions of poor surface transportation, are beginning to view the helicopter as their possible salvation.

Tippett recently resigned from TAYR, leaving the company 100% Argentine. He was in the U. S. recently, returning to Buenos Aires several weeks ago. His future plans are indefinite, but there is possibility that he may represent Bell Aircraft in a sales and consultant capacity. Both he and Bell believe there is a good future market for the helicopter down there. At present, there are 33 helicopters in Argentina, seven in Brazil and one in Colombia, plus several soon to be delivered to Venezuela.

Douglas, Canadair In Contract Dispute

A dispute between a U. S. aircraft manufacturer and a Canadian plane-making firm broke into the open late last month when Douglas Aircraft Co. brought legal action to recover $1,400,000 from Canadair, Ltd., for alleged breaches of contracts. Canadair promptly branded the suits as "absolutely unfounded" and promised that they would be "vigorously contested."

One of the two actions brought by Douglas in Quebec Superior Court contends that Canadair violated provisions of a 1944 contract originally made between Douglas and the Canadian government and subsequently assigned by the latter to Canadair. Under this contract the Canadian government was licensed to manufacture four-engined planes of Douglas design and to sell parts for such aircraft as were made under the contract.

The second contract was made in 1946 between Douglas and Canadair and licensed the latter to make and sell spare parts for Douglas C-47's upon payment of agreed royalties, with Douglas to furnish technical information, drawings, etc., which it claims it did.

Douglas alleged this contract was subsequently terminated but that Canadair nevertheless has "continued to manufacture spare parts which it has sold in the U. S. and elsewhere in breach of the agreement." Damages of $300,000 are sought in the first action, and of over $1,100,000 in the second.

'Amicable' Relations. Douglas emphasized that its relations with the Canadian government "have been and continue to be amicable and satisfactory," and said the court actions were taken only "after every reasonable effort had been made to resolve these differences without recourse to the courts."

Canadair, replying through an unnamed spokesman, asserted that it "has always adhered strictly to the terms of its obligations, and cannot submit to unjustifiable interference with the free exercise of its legal rights."

The actions, Canadair said, relate only to the production and sale of spare parts, and have no bearing on the manufacture of the Canadair Four, as suggested in Douglas' press release. It said they arise out of interpretations of contracts and alleged claims with which Canadair most emphatically does not agree.

Non-Sked Sues Airlines For 'Pseudo Coach Service'

As long as the non-scheduled carriers were operating cut-rate coach-type services in competition with the scheduled trunklines' regular-fare flights, they could see nothing wrong with the practice. But when the scheduled lines went in for coach-type services at fares comparable to those of the non-skeds, the practice suddenly became iniquitous.

On April 4, S. E. Spicher, president of S.S.W., Inc., a California non-sked, charged 12 major scheduled carriers, the Air Transport Association, and the Air Traffic Conference with conspiracy to restrain interstate airborne trade and with violations of the Sherman Anti-Trust Act in connection with their operation and sponsorship of air coach services.

Asking $1,500,000 damages, the suit charged that the airlines and air associations "under the guise of experimental operation," have initiated a "pseudo coach service" designed to drive independent air carriers out of business.

Besides ATA and ATC, the suit was directed against American Airlines, American Overseas, Braniff, Capital, Colonial, Continental, Eastern, Northwest, Pan American, Panagra, TWA and United.

The case will be heard in U. S. District Court for the District of Columbia.

Trans-Atlantic Delivery— Shown above are two crews of World-Wide Aviation Agencies and Sales, Inc. of Montreal with personnel of SWISSAIR immediately following trans-Atlantic delivery of two Convair Liners to this operator. SWISSAIR is the second European operator to put Convairs into service. KLM is presently operating the ships in Europe. World-Wide has been contracting for this type delivery service since V-J day and has completed over 1,500,000 miles ferrying operation. Shown in the photo, left to right, are: Chief Inspector Dutsch (SWISSAIR), RN F. E. Birchall (World-Wide), Ass't to Technical Director Westerman (SWISSAIR), Capt. W. J. D. MacLaren (World-Wide), Technical Director Lack (SWISSAIR), Capt. A. Elie (World-Wide), Flight Engineer T. F. Colahan (World-Wide), Technical Director de Meiss (SWISSAIR), Capt. D. M. McVicar (World-Wide), and Radio Navigator R. N. Holmes (World-Wide). Capt. McVicar is president of World-Wide.

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UNITED AIR LINES

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PAA, Grace Proposal Halts NAL Hearing

A major transaction including projected equipment interchanges between National Airlines, Pan American Airways, and Pan American-Grace Airways (Panagra) and the acquisition of considerable stock interests in NAL by both Pan American and W. R. Grace & Co. was disclosed Mar. 30 by NAL attorney John W. Cross at a session of the National Airlines dismemberment case hearings.

Immediate effect of the announcement was to break up the hearing which stands suspended until an indefinite date, and may indeed never be resumed.

This is what the companies plan: (1) An interchange will be worked out between Pan American and National and another between Panagra and National. This will probably turn out to be a trackage lease, with PAA planes operating over NAL's routes from New York to Miami and points in Latin America beyond Miami and Panagra planes, which now fly from the Canal Zone to Miami over PAA's route, continuing on to Washington and New York over National's route;

(2) If the interchanges are approved by CAB, W. R. Grace & Co. will sell to Pan American 108,750 shares of the 174,000 shares of National Airlines' stock it bought recently.

(3) National has granted to Pan American an option good for eight months from the date CAB approves the interchanges, to buy 323,750 shares of NAL stock.

(4) National has granted to W. R. Grace & Co. a similar option to buy 194,250 shares. If these options are taken up, it is intended that PAA will end up holding 30% of National's stock and W. R. Grace & Co. will have 18%, for a total 48% between the two companies.

New Stock Issue. National will probably have to issue some new stock to honor the options. PAA and National say they believe the agreement to undertake all these transactions will accomplish "the constructive purpose expressed by the Board" in beginning the NAL dismemberment case.

National immediately asked CAB to dismiss the dismemberment proceeding on the ground that it seems to have accomplished its purpose of strengthening NAL's route pattern. As an alternative, it asked the Board to defer further action on dismemberment until it can pass on the projected interchanges.

Chief Examiner Francis W. Brown, who was hearing the case, told PAA, Panagra, and NAL that they would have until April 20 to file the interchange agreements for Board approval. Other parties to the dismemberment case were given until April 27 to file statements of their positions.

CAB CALENDAR

Apr. 18—Hearing in Through Service by Interchange (Memphis and/or St. Louis) Case. (Docket 3426 et al.) 10 a. m., Conference Room "A," Departmental Auditorium. Examiner Warren E. Baker.

Apr. 20—Hearing in Chicago and Southern Airlines Bloomington, Peoria, Springfield Abandonment Case. (Docket 3571). Tentative. Examiner Curtis C. Henderson.

May 2—Hearing in Southern Transcontinental Route Case. (Docket 1102 et al.). Tentative. Examiners J. Earl Cox and Walter W. Bryan.

May 2—Hearing in Reopened Hawaiian Case. (Docket 851 et al.). Tentative. Postponed from April 11 at request of Pan American Airways. Examiner Ralph L. Wiser.

May 3—Hearing in Delta Air Lines-Chattanooga Case. (Docket 3297). Tentative. Examiner Walter W. Bryan.

May 16—Hearing in North Atlantic Route Transfer Case. (Docket 3589 et al.). To begin May 9 if possible. Tentative. Assistant Chief Examiner Thomas L. Wrenn.

Aviation Calendar

Apr. 25-27—American Association of Airport Executives annual meeting, Hotel Biltmore, Oklahoma City. (Changed from Apr. 3-6).

Apr. 28-29—I. A. S. Personal Aircraft meeting, Hotel Allis, Wichita, Kan.

Apr. 30-May 1—Annual Southeastern Air Show and Exposition, Jacksonville, Fla.

May 2-4—Airport Operators Council annual meeting, Brown Palace Hotel, Denver.

May 5-6—Purdue University Air Transportation Education Conference.

May 9-11—Airline Finance and Accounting Conference, ATA, Edgewater Beach Hotel, Chicago.

May 12-13—Instrument Society of America spring meeting, Royal York Hotel, Toronto.

May 17—National Safety Council, Air Transport Section meeting, UAL offices, San Francisco.

May 23-24—AIA's 14th NASC National meeting, Washington, D. C.

May 24-26—AIA Board of Governors annual conference, Williamsburg, Va.

May 24-27—Joint I. A. S.-Royal Aeronautical Society Conference, New York City.

June 1-4—Aviation Writers Association convention, Statler Hotel, Washington.

June 3-12—Michigan Aviation Week, auspices Aeronautical Commission.

June 4-5—Third annual All-Woman Air Show, Miami, Fla.

June 4-5—Fourth Annual Air Fair & Industrial Exposition, Shawnee, Oklahoma.

June 20-21—Aviation Distributors and Manufacturers Association officers, directors, Broadmoor Hotel, Colorado Springs.

June 23-25—California Association of Airport Executives convention, San Francisco.

June 26-28—National Aeronautic Association annual convention, Akron, Ohio.

International

Apr. 19—ICAO NOTAM meeting, Montreal.

May 2—IATA Executive Committee meeting, Montreal.

May 17—IATA Technical Conference, Switzerland.

May 30—IATA Technical Committee meeting, Switzerland.

June 1—ICAO Subcommittee meeting on Revision of Warsaw Convention, Montreal.

June 1—ICAO Subcommittee meeting on Revision of Rome Convention and Brussels Protocol, Montreal.

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Between the Lines

By James J. Haggerty, Jr.

New Try at Unification

We dropped over to the Pentagon last week to sit in on the first formal press conference of the new Secretary of Defense, Louis A. Johnson.

Johnson is quite a personality. A big man with a big, friendly grin not at all like the fixed grimace of most professional politicians, Johnson presents an interesting contrast to his predecessor, the cold, austere Forrestal, who rarely smiled and who glared at the world as though he were mad at all of it. You can see in Johnson evidence of real, driving energy and you get immediately an impression of capability. Behind the smiling affability, however, Johnson's sharpness gives evidence of a personality that can be hard and ruthless when need be.

At his press conference he showed himself to be extremely light on his feet. First, he personalized the conference by having each reporter introduce himself. Then he took on the questions, answering the harmless ones in a profound manner which made it seem as if he were expounding great secrets of state. He answered few questions, however, because most of them were "fast balls," carefully worded queries designed to catch the Secretary off guard. He never let his guard down, though, and he tossed the fast balls back with his big grin and a bantering manner that left his questioners completely unresentful of the fact that they received no answer.

Plan of Action. Johnson tossed off a few of his plans. First, he is going to juggle all of the Pentagon offices, so there will be physical, if not spiritual, unification. Second, he is going to abolish a number of the myriad boards which populate the defense establishment; there are "too damn many" for efficiency, he said. Then he is going to fire anyone he believes is not working wholeheartedly for unification: "There will not be room for them around the Pentagon."

He already has a "pretty fair conviction" as to who handles what in the air power argument, he said; however, he is going to give the Joint Chiefs of Staff an opportunity to convince him he's right or argue him out of his conviction before testifying before Congress.

He's going to see to it that the services no longer vie for publicity; to this end there has already been established (on paper) a joint public information office, whereby the Secretary's office will get a chance to see every press release that is issued by any of the services.

Well, he has some ideas, but we think that Mr. Johnson will find out that unifying the three services is perhaps more of a job than he thinks. You don't accomplish it, for example, by moving offices around in the Pentagon. Nor by consolidating the public information outlets, for the Air Force and Navy, for instance, in their battle for air supremacy, don't usually resort to press releases to get an idea into the newspapers. That is done quietly, under cover, via the "plant" method, and we doubt that the new Secretary can stop that.

But, at any rate, we are convinced that Mr. J. will make an honest try to unify the soldiers, sailors and airmen. We got the impression that he's the sort of man who can do it, if it is humanly possible to do it, which we sometimes doubt.

Bitter Opposition Certain. Incidentally, Johnson's statement that he has "a pretty fair conviction" as to the roles of the Air Force and Navy in aerial warfare has caused considerable uneasiness in the Navy Building. Johnson's intimates, or those who claim intimacy, say that he is pro Air Force in the eternal argument of heavy bomber vs. carrier. This is not at all unlikely in view of his record as Assistant Secretary of War from 1937-1940. He encouraged the development of the Flying Fortress against considerable opposition and fought for air preparedness.

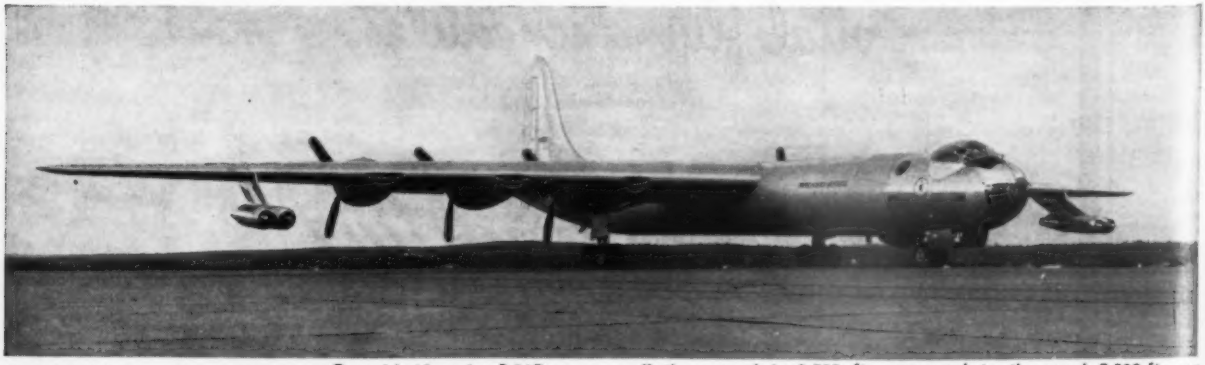
Whatever his decision, Johnson will make some bitter enemies on the losing side, for both the Air Force and the Navy take their air power argument pretty seriously. There will be some sharp broadsides of snide fire at the Secretary by the losing team. And they won't come in press releases.

McNarney Moves In. At Johnson's press conference, he was accompanied by Air Force Gen. Joseph T. McNarney. Johnson explained that he had called McNarney in from his post at Air Materiel Command to handle the big office shuffle in the Pentagon, and also to serve as Johnson's "advisor on organizational and administrative matters."

McNarney's appearance, however, gave rise to a lot of speculation. In the first place, observers reasoned, you don't call in a four-star general from an important post just to help move furniture. In the second place, if it's an advisor Johnson needs, he's got a whole Pentagon full of them, of varying degrees of intelligence and in any political color desired.

It would appear, then, that Gen. McNarney is slated for a more important post in the defense establishment than he now holds, though just which post is uncertain.

There is now before Congress a bill to create a permanent chairman of the



B-36D Makes First Flight—Convair's 10-engine B-36D prototype is shown here landing at Fort Worth, Tex., after its maiden flight of 3 hours, 15 minutes on Mar. 27. The Allison J-35 jet engines were cut in on take-off, permitting the plane, at a gross weight of 280,000 lbs., to get off the ground in 3,500 ft., compared to the usual 5,000-ft. run. The prototype climbed to 40,000 ft. for test work, but the Air Force would not comment on performance of the jets at altitude. All B-36's will be equipped with the jet engine "pods", which are removable. Air Force plans to order total of 170 B-36's.

Joint Chiefs of Staff, a sort of Chief Chief of Staff who would be a direct link between the President and the services, and a supreme commander of the military. Some observers think that McNarney might get this slot, if such a post becomes law.

This, of course, would raise a howl from the Navy that would make the roar of a rocket engine seem like a whisper, but any selection for that top position is going to raise a similar roar from one or the other of the services, so that wouldn't be too important a consideration.

At any rate, we're willing to make a small wager that McNarney is not in the Pentagon to shuffle desks. We predict a new job and a bigger one for the general.

Security Double-Talk

A few months ago in this column we mentioned an interesting paragraph in the security regulations of the Defense Department which made the withholding of embarrassing information entirely legal. We refer to the paragraph in the regulations which said: "Documents, information or materiel, the unauthorized disclosure of which, *while not endangering the national security . . . would cause administrative embarrassment, or difficulty* . . . shall be classified confidential."

We pointed out at the time that there had been pretty flagrant abuse of that clause. There had been a tendency in the defense establishment to slap a "confidential" stamp on practically everything, lest some unpleasant publicity might result.

Last week a new Air Force security regulation was issued, and the "embarrassment" clause is gone. But we wonder if the intent is. Listen to the new one:

"Confidential: Information, the unauthorized disclosure of which, although not endangering the national security, would be prejudicial to the interests or prestige of the nation, or would cause unwarranted injury to an individual, or would be of advantage to a foreign nation."

Now that last clause, of course, is kosher; but how about the other two? We can just see the Public Information Withholders smacking their lips over them, fitting each little piece of unpleasant news into one category or the other. Every minor scandal from now on will be either prejudicial to the nation's prestige or would cause unwarranted injury to someone.

Speed Record

Joe De Bona, flying a North American F-51 fighter plane, established a new official transcontinental speed record for piston engine aircraft of 5 hours and 5 seconds on Mar. 29, when he flew the 2,453-mile course from Burbank to La Guardia Field at average speed of 491 mph. An Air Force Lockheed F-80 jet fighter still holds the official coast-to-coast record for any type plane of 4 hours 13 minutes.

Production Spotlight

More B-36's: The Convair B-36 Air Force project, slated for cutback and oblivion a little more than a year ago, has now become the big gun of the Air Force's procurement program. Last week the Air Force announced its intent to buy another 36 B-36's, bringing the total ordered and planned to 170. The original order of 95 planes is now about two-thirds complete, while a request for a second order of 39 is still awaiting Budget Bureau approval.

Also announced at the same time were plans to add five more Boeing B-47 six-jet bombers to the original order of 10.

To get the money for these new purchases, the Air Force was forced to cancel a previous contract, since it had allocated all of its appropriated funds for fiscal 1949. The cancellation victim was Boeing Airplane Co.'s B-54, which would have been a basic B-50 airframe with Pratt and Whitney R-4360 VDT compound engines designed to increase range, speed and ceiling. The Air Force had ordered 43 B-54's, but Boeing will now only build one experimental model.

About $189,600,000 had originally been allocated for the B-54's, but all of this money will not be available for the new purchases, since the contract cancellation will be an expensive one, due to the fact that a large portion of the work had been subcontracted to other manufacturers. Douglas Aircraft, Consolidated Vultee, Northrop Aircraft, Rohr Aircraft Corp., and Texas Engineering and Manufacturing Co. all had major subcontracts and a number of smaller subcontracts had been let. All subcontractors were well along on their work, since first deliveries were scheduled for August-September.

Improved Outlook: *It begins to look as though aircraft manufacturers will get a lot more military business during the fiscal year 1950, which starts July 1, than they had anticipated. Last week a subcommittee of the House Appropriations Committee approved a proposal by Rep. Carl Vinson (D., Ga.), chairman of the House Armed Services Committee, to transfer $800,000,000, originally earmarked for universal military training, to the Air Force. There are indications that the House will go along with this. That could mean that the Air Force might have $435,000,000 more to spend for planes (the rest of the $800,000,000 is for personnel, maintenance, operations, etc.) or a total of $2,045,000,000, which is actually about half a billion more than will be spent this year, in spite of a generally curtailed defense budget.*

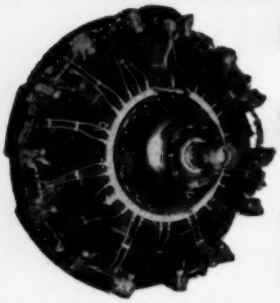
Navy contractors, too, saw a ray of hope. Vinson has asked Congress to increase the Navy's air appropriations for 1950 by $545,000,000, $343,000,000 of which would be used for plane procurement. This would permit the Navy to buy 518 more planes than the 843 provided in the President's budget.

Packet Successor: **Fairchild Engine and Airplane Corp.'s** Aircraft Division has completed the first two models of the C-119 troop carrying transport, successor to the C-82 Packet. One will be turned over to Air Materiel Command for static testing and the other will be delivered to the Air Force for operational use . . . **Ryan Aeronautical Co.** has delivered the first of 50 subcontracted Stratocruiser rear fuselage assemblies to Boeing Airplane Co.

Trainer Contracts: *An Air Force contract for 100 T-31 primary-basic trainers was awarded to Fairchild Engine and Airplane Corp. after a competition at Wright-Patterson Air Force Base, Dayton, O. Also competing for the contract were Beech Aircraft Corp., with a trainer version of its Bonanza, and Texas Engineering and Manufacturing Co., with a Swift trainer. Fairchild's contract totals $8,000,000, which includes spare parts and engines.*

This and That: **Convair** has changed the name of Convair Equipment Corp. to Airfleets, Inc. The corporation will lease Convair-Liners and probably other manufacturers' planes to airlines, if a request for a $43,000,000 RFC loan to get it started is approved . . . Current indications are that the **Atlantic Pact** will mean little in the way of sales to aircraft manufacturers, except for some possible reconditioning contracts for planes taken out of storage to be turned over to European nations. The plane types will probably be Boeing B-29's, Republic F-47's, North American F-51's, and Douglas SB2D's . . . The Air Force has confirmed the fact that **The Glenn L. Martin Co.** is working on an experimental bomber, the XB-51.

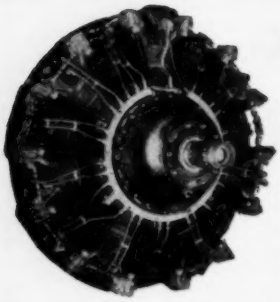
J.J.H.



R1830-92

150

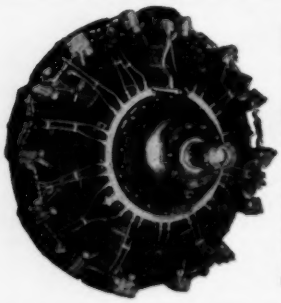
MAJOR OVERHAULED to meet AIR CARRIER requirements by authorized PRATT & WHITNEY Agency; low time first run, known history; each $3500.00



R1830-92

250

Converted from low time (average total 50 hours) Pratt & Whitney R1830-43 or -65 by approved Pratt & Whitney agency, block tested, warranted; each $2750.00

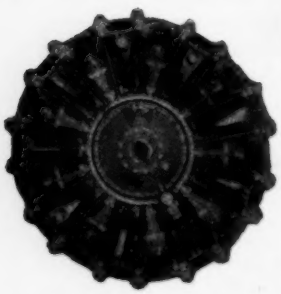


R1830-43-65

(Converted to 1830-92)

250

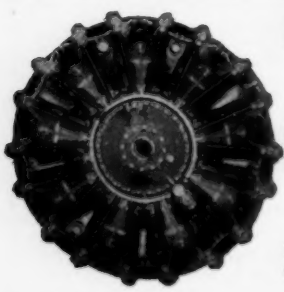
MAJOR OVERHAUL (military) first run (average total time 300:00 hours) with zero time since conversion to R1830-92 specification by recognized agency, block tested C.A.A. Form 337, warranted; each $2000.00



R985-AN-1, AN-3

250

MAJOR OVERHAULED by P. & W. approved agency. $1950.00



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NEW (unused) P & W Engines, each $3750.00

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PRATT & WHITNEY ENGINES

The Pratt & Whitney engines illustrated here are offered "Subject to Prior Sale," packed and inhibited for indeterminate long time storage, complete with records backed by a world wide organization with more than TWENTY years of experience.

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P & W R2800-79, -77, -75, -65, -59, -57, -43, -31, -21

P & W R1830-94, -88, -75, -53

P & W R985-50, -25 -AN14, -AN12, -AN6, -AN3, -AN1

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Our Inventory Pratt & Whitney Parts at Government Acquisition cost — $30,000,000.00

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Curtiss C-46F— 350:00 total hours
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AIRFRAME SPARES

$1,000,000 WAR ASSET INVENTORY NEW C-47, DC-3, C-54 SPARES. WRITE FOR CATALOG. Other spares for No. American AT-6; AT-16; B-25; C-46; PBY; Lockheeds (all series); PT-26.

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PBY's

17 PBY's—Your choice $10,000.00
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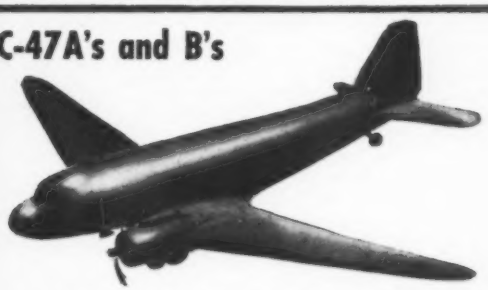
Low total time; some with nearly new or zero time engines

C-47A's and B's



Low total time; NC licensed, Excellent, clean condition, 24 Volt
Several to choose from $20,000.00 and up.

A-26B's

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Less than 10:00 hours total time. NEW R2800-79 engines
All NEW modifications; spotless condition. 300 plus MPH cruising speed, long range. $55,000.00 each

B-25J's

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NL-66548

343:00 total hours—$17,500.00
152:00 total hours—$47,500.00
NL-66548 has deluxe interior and in spotless condition

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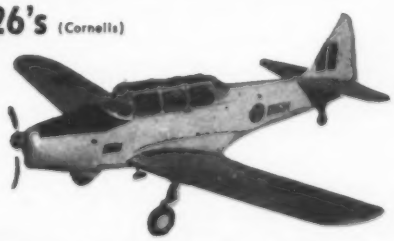


200 HP Rangers. Complete stock of Air Frame and Engine spares
120 aircraft to choose from
Prices: $750.00 to $2000.00

PEOPLE

ADMINISTRATION

Joseph A. Uhl has been elected a vice president of Continental Air Lines in addition to his regular duties as secretary-treasurer.

Price Campbell, president of the West Texas Utilities Co., of Abilene, has been elected to board of Pioneer Air Lines. Also elected to the board were **Eugene W. Bailey,** secretary-treasurer of the company, and **Harding L. Lawrence,** vice president of traffic and sales.

Johannes Martin, who joined KLM Royal Dutch Airlines in 1921 as general secretary, becoming assistant vice president in 1938 and vice president-traffic in 1946, will retire Aug. 1.

J. L. O'Brien, formerly director of personnel for Northeast Airlines, has been named executive director of the Airlines Personnel Relations Conference (formerly Airlines Negotiating Conference), succeeding Hugo Eskildson, who resigned to accept another position.

OPERATIONS—MAINTENANCE

Capt. B. S. Dixwell has been appointed chief pilot of Northeast Airlines, succeeding **Capt. Wheeler,** who has returned to active flight duty. Dixwell joined NEA as an agent in 1939 and became a flight instructor in 1941.

F. E. (Ed) Maliar, until recently an Air Force inspector for Lockheed Aircraft Service, has been appointed superintendent of maintenance for Robinson Airlines. **J. L. Starkweather,** formerly manager for American Airlines at Elmira, has been named superintendent of stations for Robinson.

Harold Fletcher has been named general superintendent of maintenance and overhaul for Canadian Pacific Air Lines. In aviation for 30 years, he flew for years with the RAF, Imperial Airways, and British Overseas Airways before going to Canada in 1929 to join Canadian Airways, one of the companies taken over in 1942 by Canadian Pacific.

Fletcher

A. E. Hutt, superintendent of maintenance for Canadian Pacific's western lines since 1945, has been promoted to superintendent of domestic line maintenance.

Myron Broten, formerly meteorologist and apprentice flight superintendent with Wisconsin Central Airlines, has been promoted to flight superintendent.

Daniel Howland, formerly in the engineering department of Pan American Airways, has been appointed maintenance engineer for Piedmont Airlines.

P&W Chief Engineer— Arthur E. Smith has been named chief engineer of Pratt and Whitney to succeed the late Andrew Willgoos. Willgoos was the chief engineer since the formation of P&W in 1925, thus making Smith the second man to hold this position in the company's history. Smith, who joined the company in 1935, has been assistant chief engineer since 1944 and for two years prior to that was chief engineer of the Kansas City branch of P&W. He will head up both reciprocating and jet engine design activities.

Rollie W. Chambers, a member of Northwest Airlines' operations staff since 1942, has been named station manager at Wold-Chamberlain Field, Minneapolis, replacing **Barry W. Daines,** who has been transferred to Washington in same capacity.

Robert B. Phillips, formerly teacher of aeronautics at Landon High School in Jacksonville, has joined National Airlines' operations department in Miami as an instructor.

W. A. Stevenson, senior representative for Pan American Airways in Panama since 1942, has retired and is returning to the States. **Elton Todd,** station manager at Balboa for the past three years, takes on the additional duties of senior representative.

Findley B. Howard has been promoted from junior manager to station manager for Pan American Airways at Brownsville, Tex., succeeding **Guy Bevil,** who resigned.

Donald R. Decker, formerly assistant to the superintendent of stewardess service at United Air Lines' Denver operating base, has been named chief of stewardess service in Chicago, succeeding **Paul J. Noftsker,** who was promoted to superintendent of station service in Boston.

TRAFFIC & SALES

Willis C. Baker, who has returned from a three-month leave of absence to resume the post of system reservations manager for National Airlines, has been given the additional position of manager of schedules.

Ian Warren, for the past several years head of Canadian Pacific Railway's overseas traffic department, has been named to fill the new post of system passenger traffic manager for Canadian Pacific Air Lines in connection with inauguration of its trans-Pacific service.

George Galvin, formerly acting district traffic and sales manager for United Air Lines in Reno, has been made chief of outside sales in San Francisco. **Benjamin J. Berry,** formerly a territorial salesman, has taken the Reno post.

Charles F. Sharp has been promoted from traffic manager of National Airlines' southeast Florida region to system sales manager.

J. J. Davin, formerly assistant district traffic and sales manager for United Air Lines in Cleveland, has been promoted to chief of outside sales in New York. **George Siegrist,** formerly district traffic and sales manager in Youngstown, has taken over the Cleveland post, and **Worth C. Edwards** has been assigned to the Youngstown position.

Frank E. Grant, veteran travel agency man and recently manager of agency service in TWA's agency and interline department in Kansas City, has been assigned to TWA's agency department in Chicago.

Leo E. Murphy, traffic manager for Robinson Airlines, has been made director of public relations.

J. M. Mills, formerly chief of passenger sales for United in Chicago, has been made chief of outside sales there.

Albert J. Jansen, former U. S. manager of the freight division of KLM Royal Dutch Airlines, has been appointed director of sales for Seaboard & Western Airlines.

James T. Robinson, formerly manager of Capital Airlines' city ticket office in New York, has been appointed manager of the Air Transport Division of American Express Co., with headquarters at 65 Broadway, N. Y. C.

Robert E. Johnson, director of advertising for United Air Lines since 1938, has been presented a 20-year service pin. He joined Boeing Airplane Co., a predecessor of United, in 1929.

Victor T. Raeburn, formerly manager of the Fifth Ave. offices of the Ameri-

can Express Co. in New York, has been named passenger traffic manager of Air France's North American and Caribbean Division.

Others in the News

Ralph S. Damon, president of Trans World Airline, has been elected a director of Veeder-Root, Inc., of Hartford, Conn.

G. Bernard Slebos has been named to succeed **Frank H. Crozier** as chief of the Analyses Division of the CAB's Bureau of Economic Regulation. He joined the Board in 1939 and served most recently as chief of the Accounts and Reports Section.

Capt. C. H. (Dutch) Schildhauer, USN, formerly sales manager of flying boat equpiment with the Glenn L. Martin Co., has announced he will stay in the aviation industry but has not stated what his new connection will be. **Charles Hart Miller,** vice president—sales for Martin, also has left the company.

Wayne Weishaar, executive secretary of the Aeronautical Training Society, has been named a member of the executive committee of the National Federation of Private School Associations.

Dean C. Smith, former Washington representative of the Hughes Aircraft Co., has been transferred to the company's Culver City plant as director of contracts administration.

Kindelberger, Atwood Sign 5-Year Contracts

North American Aviation has placed its two top executives, J. H. Kindelberger, chairman of the board, and J. L. Atwood, president, under five-year contracts providing annual salaries of $125,000 and $85,000, respectively.

In addition, both contracts contain inducement clauses tied to North American's retirement plan for employes. It is estimated that both would be entitled to pensions of $18,000 anually beginning at the age of 65 through their own and company contributions to the plan.

Kindelberger's agreement provides for lifetime payments to himself and his beneficiary of $2,500 a month, provided he does not join any other large aircraft manufacturer for a period of three years, if he terminates his employment with North American, without the latter's approval. In addition he would be available to North American for consultation during the three years.

Atwood's contract provides that in event he becomes incapacitated or his health impaired so as to require termination of his employment, he is to receive $1,500 a month for life. His wife would receive $750 a month for life in event of his death before termination of his employment.

Airline Commentary

By ERIC BRAMLEY

WE HAVE HERE a memo from an experienced airline traveler. It says: "The first airline to come up with bibs for passengers to use while eating meals on airplanes will make a big hit. It is difficult to eat without spilling something on the tie. I tuck my napkin into my collar; so do many others. But an inexpensive bib might be a smart idea—and for advertising purposes, too. Passengers could take the bibs home and use them for their kids, and the advertising would be seen by many. Any bib that is designed should have wide straps for easy tying." Well, whadya say, boys?

•

Arthur Godfrey, well known to anyone who listens to the radio or watches television, really did a job for the airlines on his television show of March 30. Eastern Air Lines and the Constellation got a million dollars worth of publicity, but it was the type of a presentation that benefits everyone. Godfrey had on his show a model of an EAL Constellation and a large aerial view of LaGuardia Field. First he explained how many passengers the plane carried, how fast it cruised, percentage of power used, etc. Then, using the aerial picture, he answered some questions he had heard passengers ask—why does the pilot stop at the end of the runway before taking off, why does he sometimes circle around the field before landing, etc. He explained clearances, check lists, traffic patterns, and a lot of things that people should know more about. Yes, he did a swell job—the kind of a job that sells people on flying.

•

The Post Office Dept. employes at the Pittsburgh air mail field office were all set to handle the mail as the TWA trip from Newark arrived. The mail sacks were unloaded from the trip, brought into the office, and the boys proceeded to open them to get the mail distributed and on its way. A clerk grabbed one sack, hurriedly unlocked it and dumped out the contents: a bunch of letters—plus one very live black cat. After the clerk regained his composure, he sent the following report to the PO in Washington: "For your information, I wish to advise that in a pouch from AMF Newark . . . there was received a live black cat, loose in the pouch, weight six and one-half pounds. The pouch was intact, but it was necessary to re-envelope and re-address five letters." (Seems like the AMF Newark clerks had been having trouble with rats, so they got themselves a cat. Kitty got a big bang out of clambering over the pouch racks, fell in, got locked up, and went for a ride. Wonder if TWA got the pound-mile rate for six and a half lbs. of cat?)

•

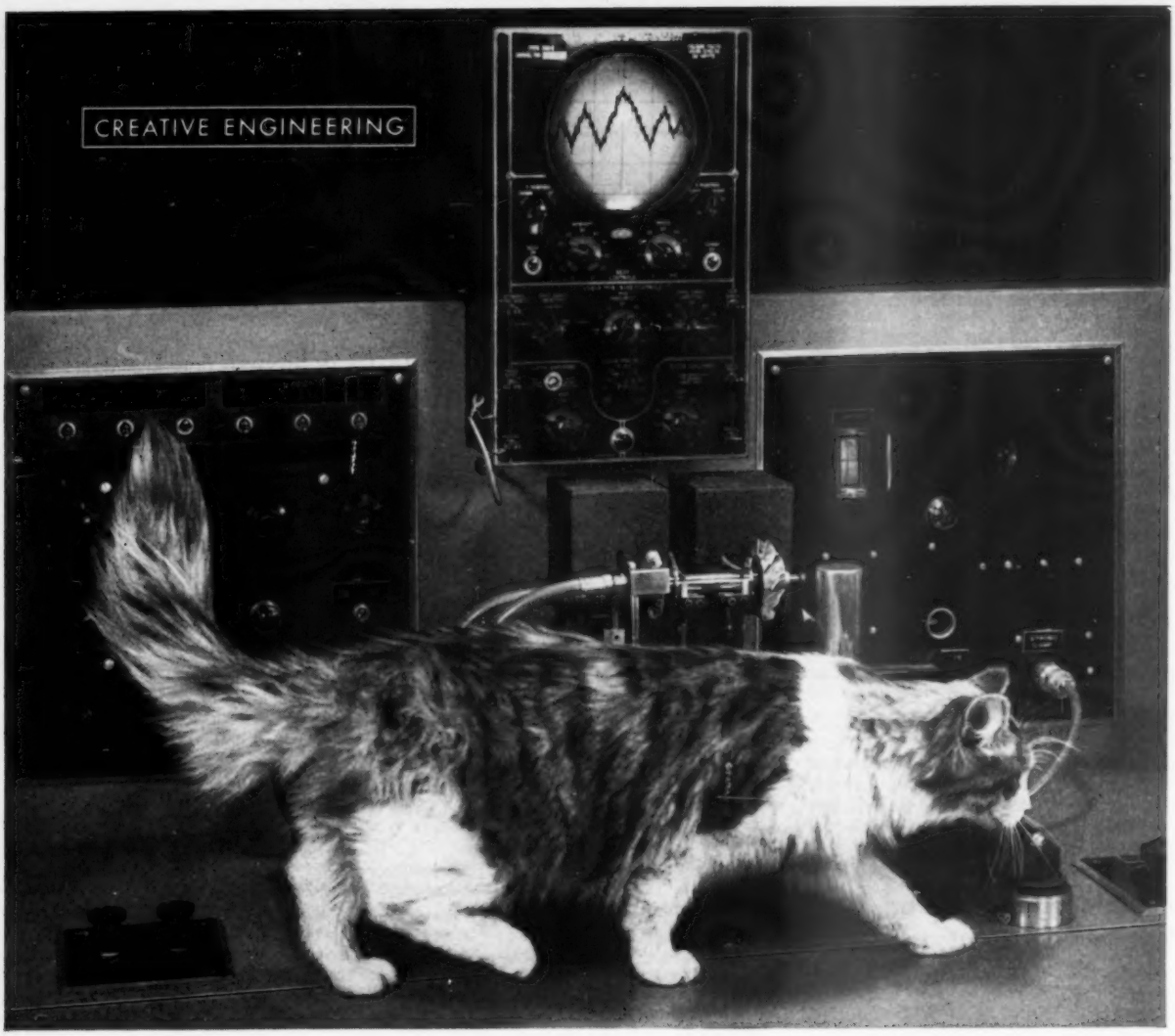
Comes a letter from Harold Crary, vice president-traffic and sales for United Air Lines, who noticed the column item recalling that UAL several years ago had sent a pilot out on a speaking tour to explain air transportation to the common folks. We asked why an airline didn't try sending another pilot out on a similar speaking trip. "United is currently doing just that," says Harold. "Jerry Pettis, one of our former pilots, is doing an outstandingly successful job in the Pacific coast area telling the public 'what makes an airline tick.' We are very pleased with the results." Sorry we didn't know about Jerry Pettis. As we said last issue, we'll bet such a tour will pay dividends.

•

American Aviation Publications are appearing more and more before airline people, which naturally makes us very happy. The announcement of a recent TWA management club meeting in Kansas City was in the form of the cover of AMERCAN AVIATION MAGAZINE. And Braniff Airways at its annual sales meeting used the cover of *Official Airline Guide* for the front of its four-page banquet program. Wayne Parrish, our editor, was the speaker at both occasions. The more people that see the publications, the better we like it.

•

It's the little things that count. An airline pilot friend of ours tells us that quite by accident he discovered that the over-water approaches into LaGuardia Field were scaring some of his passengers who had had only one or two plane rides. These people thought the plane was going to make a water landing. So now, as standard procedure, he announces over the DC-6's loudspeaker system that the approach will be made over water, etc. Result: satisfied customers.



HOW TO MEASURE A PUSSYFOOT!

Electric impulses leap across the "scope" of this fantastic balancing machine—so delicate it can record the footfall of a kitten walking on a steel table two feet away!

To meet unsolved critical needs in the cooling and pressurizing of the new sonic-speed jet airplanes, AiResearch has perfected a new kind of refrigeration turbine. Heart of this turbine is the fan rotor which operates at speeds in excess of 100,000 rpm. It was to precision control the manufacture of this rotor to a tolerance of 5 millionths of an inch that AiResearch engineers designed and constructed the balancing machine shown above.

The ability of AiResearch not only to design but to manufacture and test equipment that will stand up under the toughest conditions is the reason the majority of all high-altitude and jet type aircraft produced in the U.S. are AiResearch equipped.

● Whatever your field—AiResearch engineers—designers and manufacturers of rotors operating in excess of 100,000 rpm—invite your toughest problems involving high speed wheels. Specialized experience is also available in creating compact turbines and compressors; actuators with high speed rotors; air, gas and fluid heat exchangers; air pressure, temperature and other automatic controls.

AiResearch
DIVISION OF
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✓An inquiry on your company letterhead will receive prompt attention.
AiResearch Manufacturing Company, Los Angeles 45, California

ATA Engineering Conference Again Proves Its Value

By William D. Perreault

"You men here tonight comprise one of the most valuable groups in the world today. It is the American aeronautical engineer and maintenance man who leads the world in air transport practices. It is you here tonight who are making possible the greater utilization of the transport airplane. Every contribution you make toward increased economy and increased safety of the transport airplane is a vital step forward in the most significant transportation revolution this world has ever experienced."

These words of Wayne W. Parrish, editor and publisher of American Aviation Publications, in his banquet speech at the Air Transport Association's annual engineering and maintenance conference at Kansas City last month, were verified by the large number of representatives from other countries who took part in the program. Among the countries represented were Argentina, Australia, Denmark, France, Canada, England, Mexico, and China.

"In two decades before the war," Parrish pointed out, "some of the other nations made great strides in air transportation, but since 1940 it is our own American aviation that has set the pace and is providing the leadership for the rest of the world. American airplanes and American operating, engineering and maintenance practices, dominate the world scene. It is your group here tonight that has largely been responsible."

These thoughts signify the transition that has taken place in the transport industry and the part played by airline

Engineers Lauded— Wayne W. Parrish, editor and publisher of American Aviation Publications, was principal speaker at the banquet following the ATA engineering and maintenance conference in Kansas City. John Collings, TWA's v. p.-operations, at left, is more than a little amused by the speaker's claim that, at best, aviation is a "fascinating frustration." Parrish stated that U. S. airlines set the pattern for world practices in maintenance and engineering.

engineering and maintenance personnel. If those who control ATA's budget would sit in on one of these conferences, there would be little concern over the relatively small sums spent in making the organization possible.

During the banquet Joe Martin of American Airlines, retiring chairman of the conference introduced the new chairman, R. M. Dunn, director of engineering and maintenance for TWA. John Collings, vice president of TWA, was toastmaster. It was announced that next year's meeting will be held at K. C. as in past.

Airlines & Manufacturers. The manufacturers of aircraft are heavily dependent upon the airlines to provide them with guidance in the design of systems and choice of equipment. This was proved beyond doubt at the conference.

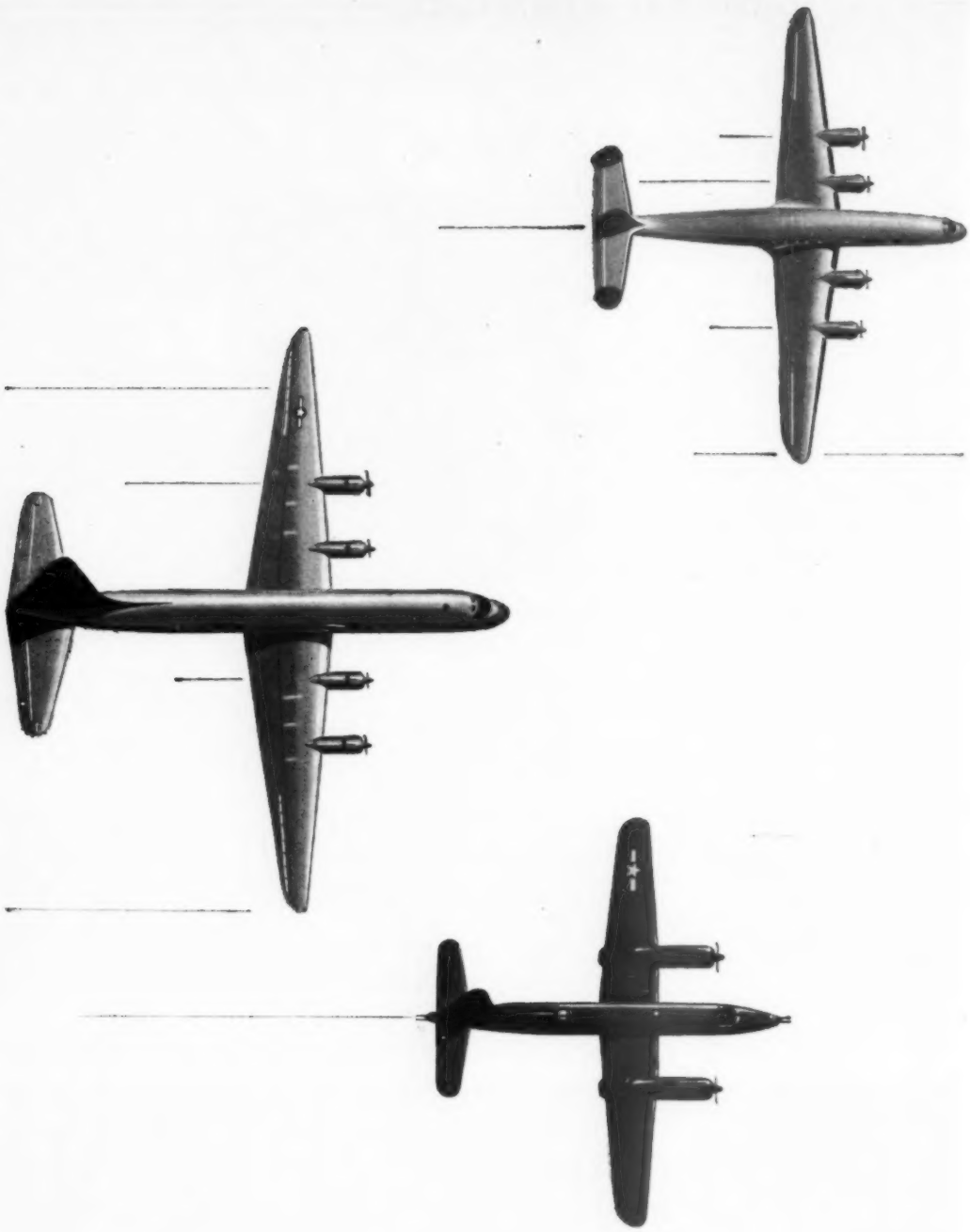
The effectiveness of the ATA in every day operation in keeping the airlines informed of one another's problems and their solutions goes a long way toward solving airline problems. The manufacturers, on the other hand, are in constant need of operational information. To this group, the annual conference brings vital information that will be used to shape corrective action in present day planes and to provide design details for airplanes still on the drafting board. Only by this process will the airlines get new equipment which will be relatively trouble free.

The conference was an effective one. Prior to the conference each of the airlines submitted questions to ATA for presentation at the meeting. There were 300 questions covering every phase of maintenance and engineering problems. These were divided into 9 categories and day long sessions were held on each.

All the manufacturers and suppliers had been supplied with copies of the questions and had time to prepare constructive comments on each problem. The airlines had time to question among the people doing the work to find the true nature of the problems encountered in service. This is important.

One major point which was evident in the meetings was that representatives thoroughly familiar with one or two categories, such as electrical and in-

Conference Cross Section— The airline representatives at the head table of the banquet held during ATA's recent engineering and maintenance conference at Kansas City are a cross section of over 400 technicians attending the meeting. In addition to representatives from all the certificated airlines, there were many visitors from other countries. Shown above, left to right, are: Maj. E. W. Luehring, MATS; Col. E. G. Kiehle, AMC; Jim Rice, CAB; L. Rodert, NACA; John Collings, TWA; Joe Martin of American Airlines, retiring conference chairman; Wayne Parrish, editor and publisher of American Aviation Publications; Milton Arnold, ATA; W. K. Andrews, CAB; Col White, MATS; R. M. Dunn, of TWA, newly appointed chairman; A. Notley, CAA.



All the Leaders are Lockheeds

All current Lockheed planes have set official world records.

The Lockheed Constitution has carried more people farther—nonstop—than any other operational transport (90 persons 2,557 miles).

The Lockheed F-80 Shooting Star set the world's official speed record for crossing the continental United States (2,445 miles in 4 hours, 13 minutes).

The Lockheed Constellation broke the official transport speed record—after four years of commercial service—by crossing the United States in 377 minutes.

The Lockheed P2V Neptune has flown a greater distance nonstop without refueling than any other plane in the world (11,236 miles—from Perth, Australia, to Columbus, Ohio).

Lockheed

AIRCRAFT CORP., BURBANK, CALIF.

Look to Lockheed for Leadership

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struments, were mighty active in those sessions but had very little to contribute in answer to direct questions at other sessions. It is a product of the conference which can not be entirely avoided. It's impossible to know all the answers, but where the airline's staff was large enough to permit extensive research on the pre-conference questions, it was very evident in the discussions.

Junior Conference? The importance and good effects of the yearly conference can not be over-emphasized, yet the point is brought to mind that there might be a good deal accomplished by a Junior Conference of ATA members in which men on a working level handled similar discussions. This conference might include foremen and inspectors or lead mechanics from the airline. There is little doubt that the key to many of the problems brought up for discussion could be found in details known only by the working group.

Joe Martin, director of maintenance and overhaul for American Airlines and chairman of the 1949 conference, had a major role in making the meeting a success, as did Al Dallas of ATA, the secretary of the conference, and M. B. Spaulding, his co-worker.

The use of a loud speaking system in the largest of the conference rooms contributed much to the meeting. There were microphones at each place so that every word spoken in the room was clearly heard.

This was particularly important in the recording of the meeting which was taken down by stenographers. Copies of the minutes were ordered by over 75 companies. The microphone set up cost about $165 for this one room but was well worth it in what those in attendance drew from the meetings.

It would seem worth while for Ray Dunn to consider the advisability of extending this service to all the conference rooms. Perhaps one or more of the manufacturers would be interested in sponsoring this service. The manufacturers have generally appeared interested in the conference and its accomplishments in their field of interest.

Important Trends. The most important things to be taken from the conference rooms are the trends in thinking among the airlines and manufacturers. In this light the following information is presented.

The most outstanding trend is easing of hydraulic troubles in aircraft systems and the growing importance of electrical systems. Although the meeting covering electrical systems, chairmanned by Ray Dunn, was well handled, there simply wasn't enough time to cover this subject in a day's time.

In a press conference after the meeting in which all the chairmen discussed the important features of their sessions, J. Weesner, of Pan American's Pacific Division, pointed out that his session on hydraulics and vacuum systems was relatively uneventful and he felt that this was due to the advances made by the airlines in handling high pressure hydraulic systems. He felt that, since electrical systems would need additional time at future meetings, hydraulic and vacuum systems might be given a lesser attention.

It is worth noting that hydraulic systems have not disappeared from the scene and even the latest transport, the Boeing 377, has considerable hydraulic mechanism, but that maintenance procedures have been improved to a point where the systems can be handled without appreciable difficulty. It is encouraging to note this transition since it can be visualized that within a matter of a few years improved procedures and trained personnel may reduce electrical system trouble to a similar position.

Oil Changes. Another trend evident in the engine session was the growing feeling among the airlines that engine oil does not need to be changed at frequent intervals. One of the "hottest" discussions at the meeting took place over this matter, but the concensus was that airlines will change oil at less frequent periods in the months ahead. In addition to less frequent changes, the airlines and some oil companies felt that the refining of oil provides a higher grade lubricant than can be obtained through present day refining methods.

The airlines are not convinced that integral fuel tanks such as used on the newer transports are the answer to maximum utilization of the wing space at minimum maintenance costs. R. B. Ault, of Eastern Air Lines, chairman of the fuel and oil sessions, claimed that the bladder type tank used on the Martin 2-0-2 and the Boeing 377 may provide service experience which will point the direction to future designs. Many of the problems associated with earlier cell type tanks have been overcome and the outlook is promising. Regardless of this, integral fuel tank troubles have been on the downgrade as the airlines "know how" and equipment have improved.

In electrical system design and maintenance the use of aluminum bus bars and wire promise to reduce installation weight, but there is need for extensive mechanic training to bridge present day troubles. The wire must be more clearly marked to prevent mistaken identity.

Finally, the extent to which Northwest Airlines is making use of tunnel type service facilities under the ramps at several airports attracted considerable attention. NWA revealed that it is working with the airport officials at Pittsburgh to provide this type service there. The tunnels in use provide fuel, air, air conditioning, electrical power, water, etc. To date it has not been found feasible to provide oil service through tunnel facilities due to the freezing cold weather flow problems.

Boeing 377 Features New Maintenance Simplicity

The Boeing Stratocruiser has been introduced into commercial service, with Pan American Airways operating the 377 in regular schedules between the west coast and Honolulu and in trial runs across the North Atlantic to London. Now the service program begins

While the Stratocruiser has been held up as an example of complexity, which may result in many early operational delays and interrupted flights, it actually is not the problem in this field that it might appear. Many of the systems and almost all of the structure of the new ship have been service proved in the earlier B-29 and C-97 versions of this new transport. There will be problems, but there are many compensating factors.

For instance, Boeing claims that four men can change an engine in 37 minutes and with a little experience this time might be bettered. It's not an idle claim. This airplane has been engineered for the service men. The cowling is held in place by trunk type latches (see picture layout on next page), which simplify removal and installation, the nine fluid carrying lines have self-sealing couplings at the firewall, all electrical connectors are cannon-type fittings, only four mount bolts are used for the powerplant, and even the ducts and control cables that pass through the firewall have quick disconnect features.

37 Minute Change. At first glance the 28-cylinder P&W 4360 engines are merely awe inspiring but further study promotes respect. The four rows of seven cylinders each provide working space around the cylinders that mechanics haven't seen except in single row engines. All four engines are interchangeable, making it possible to store one spare engine at a station instead of several.

Ignition trouble has been, and continues to be, a major airline problem with all engine types. With the R-4360 engine there are seven magnetos, one dual magneto serving each of the seven rows of helically arranged cylinders. This arrangement isolates trouble for the mechanics. In ground checking the engine he can isolate ignition trouble to one of four cylinders and to the left or right plugs in the cylinder by simple methods. This one feature can save many hundreds of hours in useless time lost each year.

The 4360 engine actually has a displacement of 4363 cubic inches. It is 96.75 inches long and has a maximum diameter of 54 inches. With a 3,500 hp. rating for take-off, using anti-detonant injection, the engine develops one horsepower per pound. To distinguish between the cylinders in the multiple rows, the rows have been lettered alphabetically from rear to the front, a through d.

There is a "simple" formula for remembering the firing order of the Wasp Major. It goes like this: Add a letter, then add four; but if the addition of four makes a total greater than seven, subtract seven. Starting with A1 cylinder then, the firing order is as follows: A1, B5, C2, D6, A3, B7, C4, D1, A5, etc.

Wartime experience with turbo superchargers caused most mechanics to dream of internal superchargers, but there is likely to be considerable relief in viewing the turbos used on the Stratocruiser. They are small, compact units which fit directly into the exhaust system with very little increase in complexity. This is possible because the turbos are used for cruising and not for take-off power. Actually the external supercharger on the Boeings are bypassed during take off operations.

The use of torquemeters, injection carburetion with slinger ring discharge, and general use of standard mechanisms will ease the maintenance of the R-4360 as installed in the Stratocruiser.

Electrical Powerhouse. The electrical system is the most feared by maintenance personnel of all the 377 systems but little trouble is expected by Boeing. Of course it will require training on the part of the airlines. Electrical systems have consistently been the sore spot in airline maintenance but gradually this has been on the road to correction. The assignment of electrical system responsibility to the radio department and/or integration of the two facilities to a lesser degree has settled much of this. In general, radio men are more apt to pursue the theoretical background which is so vital to electronic system troubleshooting.

Regardless of this, the Boeing 377 is a powerhouse. There are six 300 amp generators. Two of these are driven by each inboard engine and one by each outboard. These high speed range generators are rated for full loads at 1,000 rpm. and provide 28-volt direct current. This power is supplemented by an engine

Specifications of Boeing Stratocruiser

Dimensions and Capacities

Length	110' 4"	Maximum Fuselage Width	11'
Height	38' 3"*	Maximum Fuselage Depth	15' 3"
Span	141' 3"	Empennage span	43'

* The vertical fin folds to bring height to 26' 7"

Maximum takeoff wt.	142,500 lbs.	Maximum payload	30,000 lbs.
Maximum landing wt.	121,700 lbs.	Operating weight empty	83,500 lbs.

Powerplant

4 Pratt and Whitney Wasp Major R-4360 engines with GE BH-4 turbosuperchargers

Takeoff Power with ADI	3500 hp at 2700 rpm.
Takeoff power dry	3250 hp at 2700 rpm.
Maximum continuous power	2800 hp at 2550 rpm.
Maximum cruise power	1900 hp at 2300 rpm.

Propellers

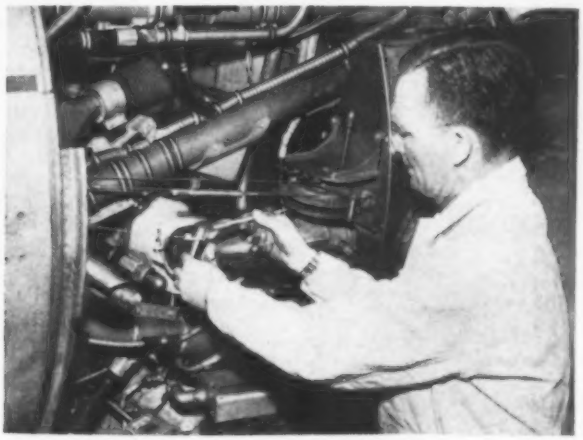
Curtiss C644S-BS02 hubs and 1052-20C4-30 blades. Diameter 16' 8" (or)
Hamilton Standard 24260 hubs with 2J17B3-8W blades. Diameter 16' 6"
Both types propellers provide for reversible pitch to reduce the landing run.

Performance

Cruising speed at 25,000 ft.	300-340 mph.
Normal operating altitude	15,000 to 25,000 ft.
Service ceiling at 110,000 lbs. gross wt.	33,000 ft.
Three engine operational ceiling at 110,000 pounds	26,000 ft.
Rate of climb, four engines, sea level, maximum continuous horsepower, 142,500 lbs.	1100 ft./min.
Rate of climb, two engines, sea level, maximum continuous horsepower, 110,000 lbs.	335 ft./min.
Stalling speed, sea level at 110,000 lbs. gross	93 mph.
Range:	
Maximum range (zero wind, no fuel reserve) 10,500 lb. payload	4600 miles
Maximum range (zero wind, no fuel reserve) 20,000 lb. payload	3550 miles
Maximum range (zero wind, no fuel reserve) 25,000 lb. payload	3000 miles
Take off:	
CAR Field length at S. L. and 142,500 lbs.	6,250 ft.
CAR Field length at S. L. and 130,000 lbs.	4,900 ft.
Landing:	
CAR Field length at S. L. and 110,000 lbs.	5,860 ft.
CAR Field length at 110,000 lbs. using four reversible props	3,470 ft.
Landing ground run at 110,000 lbs. using four reversible props	1,230 ft.

Four Men Complete Boeing 377 Engine Change in 37 Minutes

Step 1— In 37 minutes four men can complete an engine change on the Boeing 377. In this photo the top right section of cowling has been removed to provide access for the engine sling. Note the trunk type latches on the cowling which require no tools for installation or removal.

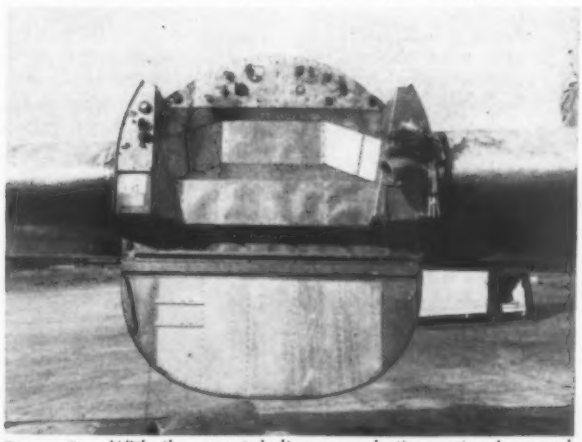


Step 2— All the cables are provided with Auto Rig connectors which do not require safetying and provide automatic tensioning of the cables on installation. Disconnecting the cable connections is a matter of seconds, without tools. The duct connections which can also be seen here have quick disconnect features.

Step 3— All the electrical connectors that pass through the firewall are grouped at the top of the nacelle where cannon-type connectors provide minimum service times. Note that all work is accomplished through the accessory side cowling which is also simple to remove.

Step 4— All fluid carrying lines have self-sealing couplings at the firewall. At this stage, with the cables, electrical connectors and fluid lines disconnected, the engine sling is moved into position. The engine weighs 3500 pounds but as removed with accessories and cowling adds up to about 7,000 pounds.

Step 5— All four engine mount bolts are easily accessible. With the engine sling in place, these connectors are removed by use of a special wrench with long extension handle. The torquemeter in the wrench is used to measure the 5100 to 7900 inch-pounds of torque required to anchor these bolts.



Step 6— With the mount bolts removed, the engine is moved away from the firewall leaving an unusually clean wall. The speed of engine change made possible by this installation is likely to lead to removal of engines rather than extensive trouble-shooting in the event of trouble on the line.

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CEE-BEE CASE STORY #71

An actual Service Experience

This airline flies 60 aircraft of various types

Former method consists of complete polishing at engine change (approx. 1000 hours), plus cleaning with 3 materials; also frequent intermediate cleaning to remove oil and dirt.

Polished appearance lasted little more than two weeks. Surface became progressively more grey, dull and dirty. This airline was unable to maintain clean, bright aircraft except with prohibitive lay-up time, excessive costs.

Operator designated 3 two-engine aircraft for 1000-hour service tests, using Cee-Bee A-3 for brightening, Cee-Bee Alumaloy A for cleaning. Cee-Bee procedures to be followed precisely.

1. At engine change period (1000 hours) aircraft were cleaned with Alumaloy A to remove oil, sludge, traffic film and dirt; deoxidized, brightened and passivated with Cee-Bee A-3.

2. Every 200 hours aircraft were cleaned with Alumaloy A.

$20,000 savings; Bright-Clean Aircraft

Based on this test, this operator estimates savings in his fleet maintenance costs of $20,000 each 6 months. Each airplane is easily kept Bright-Clean *at all times*.

Your planes, like those in Case Story #71, can be Bright-Clean at all times—not just after major overhaul. Cee-Bee A-3 and Alumaloy A, used in a consistent program as recommended by Cee-Bee, produced the important results in this Case Story. They can do it for you.

See for yourself how Cee-Bee's Bright-Cleaning Procedure produced these results. Write today for detailed comparative information.

Small Plane Owners!

Cee-Bee's cleaning procedures are not restricted to air fleets. You, too, can keep your school, corporation or personal plane Bright-Clean at all times. Write for information and name of aircraft supply distributor in your area.

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driven alternator mounted on each outboard engine, four main rotary type inverters, one emergency stand by rotary type inverter and one vibrator type inverter, all supplying A.C. power.

The four main inverters supply 115 volt, 400 cycle, single phase current and through the use of phase adapters and transformers also furnish 26 volts for instruments and 208 volt power for fluorescent lights. Two engine driven alternators supply 208 volt three phase variable frequency current for the galley and cabin window heating. The vibrator inverter provides 110 volt, 60 cycle current for operation of the electric razors.

There are 7 razor outlets, four in the men's dressing room, two in the ladies' dressing room, and one in the crew toilet compartment. Automatic switches in the razor plug start the inverter.

When the airplane engines are operating on the ground it is necessary to provide some type of cooling of the generators and this is accomplished by a single blower for each engine assembly. This blower provides cooling air for the dual generators or generator and alternator set up on each engine while the airplane is on the ground. A micro switch mechanism connected to the landing gear cuts off blower operation when the airplane is airborne.

With all this power, operation of the system is kept pretty much automatic. Each generator system is provided with a regulator, reverse current relay, overvoltage relay, overheat, warning switch and field tickler. The field tickler is relatively new and is provided to insure against reversals of generator polarity and to prevent loss of the residual field. The tickler will eliminate the need for generator field flashing.

The inverters are set up for automatic changeover in the event of inverter malfunctioning. To permit this type protection, operating loads are divided into essential, secondary and lighting loads. With one inverter supplying each of these loads the fourth one is a spare. A warning light on the pilot's panel informs the crew if there is no power on the essential bus and an automatic changeover relay switches the spare and essential load inverters in the event of failure of the number 1 inverter which normally supply essential power.

Aluminum wiring is used in many applications with a weight saving, over previous types of wiring, of about 300 pounds. Although it is too early to predict how this feature will work out in service, it was indicated at the recent ATA engineering and maintenance meeting that there is a major need for education of personnel in the use of aluminum wire. Use of copper lugs on aluminum wire and general abuse of the comparatively fragile aluminum wire has caused trouble in the other airline ships in recent months.

Hydraulic System. Although the hydraulic system of the Boeing 377 is considered a minor system, it still plays a sizeable part in aircraft operation. Hydraulic power is used to operate the nose wheel steering, windshield wipers, brakes, emergency brakes and rudder boost. The relatively low system pressure, 1650 pounds psi., will undoubtedly simplify hydraulic system maintenance. Fluid capacity of the system is 13.6 gallons of which 8.5 gallons are in the supply tank and .5 gallon is available only to an emergency hand pump. The system has three accumulators.

The hydraulic brakes are of the Hayes expander tube type operating on a pressure of about one-third system pressure. The pressure reduction is accomplished by a debooster on each main landing gear.

Nose wheel steering operation provides for 68 degrees nose wheel movement on each side of the airplane centerline. Inadvertent nose wheel movement is prevented while the airplane is airborne by a special shut off valve and centering cams for the gear mechanism. The gear is completely re-retractable in from 8 to 12 seconds.

The rudder boost system provides 22 degree rudder movement either side of the airplanes center line and in the event of a hydraulic system failure the system changes to manual operation automatically. The entire rudder vertical fin assembly can be lowered by means of a special screw jack in about 5 minutes even in winds up to 30 mph.

35 Fuel Cells. Another major problem in airplanes of recent design is the maintenance of integral fuel tanks in the wings. The Stratocruiser has an extensive fuel system with a total fuel capacity of 7790 gallons but it uses 35 collapsible nylon bladder type fuel cells which are interconnected to form five tanks. In some airplanes the four outer cells in each wing are not used with the result that total fuel capacity is lowered to 7070 gallons.

Any one of the cells can be stowed in a roll six inches in diameter and 38 inches long. During installation of the cell in the wing, the cell is folded up and placed inside the tank. The mechanic follows the cell into the tank and starting at one end attaches the cell to the wing structure via a simple socket and cotter key.

When the individual cells are installed, they are grouped together to form the wing five separate tanks. All the fuel control valves, including those used for dumping fuel, are electrically controlled. This provides a major reduction in weight, cables, rigging problems, etc.

The fuel tanks include dual submerged-type fuel pumps, electronic fuel gages and provisions for underwing or overwing fueling. The filler necks will handle 200 gpm. Fuel draining of the entire system, or any individual tank, can be accomplished through a central manifold at the rate of 1200 gallons gpm.

Heated Wings. The extensive thermal deicing system of the Boeing will

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FUEL FLOW
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Non-stop 'Round-the-World Flight Made by U.S. Bomber in 94 Hours

(Pictures and map on Page 12.)

Fort Worth, Tex., March 2.—(AP)—The United States Air Force has circled the globe non-stop for the first time.

The Lucky Lady II, a B-50 medium bomber, and her crew of 14 surprised the world today by winding up the epochal feat here. Refueling on the wing made it possible.

Ninety-four hours and one ...

"It seems to me you can go just about anywhere in the world any time."

Gen. Curtis E. Lemay, chief of the Strategic Air Command, was asked if this meant that, using ... refueling methods ... an A-bomb ...

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be relatively new to the airline personnel but it is much the same as the combustion setup used for cabin heating in earlier model aircraft and should offer no major problems. Eight combustion type heaters are used in the system. Three are mounted in each outboard nacelle for the respective wings while two more are located in the vertical stabilizer structure for empennage deicing.

All three sets of deicing heaters are independent in operation having their own air supply, ducting, controls, etc., but receive fuel from a common source, number 2 fuel tank or the main manifold. Normally wing deicing is for the entire area from root to tip, but in an emergency the inboard section of the wing can be isolated from the system. Each of the Stewart Warner heaters is rated at 200,000 BTU's per hour. Heater output temperature is normally limited to 330 degrees F. in flight and 200 degrees on the ground.

Air Conditioning. Although the heating cycle of the air conditioning system will be familiar to maintenance personnel, the refrigeration system will be new.

In the Stratocruiser, two Stewart Warner heaters, mounted in the wing center section, provide some 400,000 BTU per hour for heating the entire airplane. In addition to this, a freon type refrigeration system capable of handling 120,000 BTUs per hour is provided with complete units located in each outboard nacelle.

This setup includes an air recovery system in which activated charcoal deodorizes the air, seven filters remove dust and dirt and then water is added as necessary to keep the humidity within desirable ranges. The system will represent the first complete air conditioning plant in commercial transport operation.

Altitude Conditioning. Closely allied to the air conditioning system is the altitude conditioning system which uses turbosupercharger air to maintain comfortable cabin conditions. This system bleeds off about 10% of the cruise turbo output at 25,000 feet to maintain a cabin altitude of 5500 feet. The system will maintain sea level cabin pressures up to 15,500 feet.

Pressure is controlled by two variable isobaric pressure regulators which in turn are controlled by cockpit selectors. In addition to maintaining cabin pressures at fixed levels, the system, through a rate of change selector control, can vary the rate of pressure change from 50 to 1500 fpm.

Most of the systems in the airplane, as well as the structure itself, have been proved in operation of other aircraft and earlier models of this particular craft. The airplane has many features that should ease maintenance problems and more than make up for any increase in individual system complexity.

Extra Section

By William D. Perreault

AFTER YEARS of stretching and straining to turn props over by hand prior to starting engines, the airlines have about decided it's unnecessary. During the ATA engineering conference at Kansas City, American, United and TWA representatives stated that they have abandoned the hand turning and use the starter directly. United "inches" the prop through by cautious use of the starting switch, but American and TWA merely count six blades during the normal starting process prior to turning the ignition switch "on." It seems that this method contradicts the manufacturers' earlier recommendations that such procedures will cause hydraulicking of the piston in the cylinder when oil has collected during ground time. All three airlines stated that experience has proved that the new approach is working out satisfactorily. Jack & Heintz has recently introduced a low torque turning unit for J&H starters that accomplished mechanical turning with the same safety advantage as hand turning, in so far as preventing damage to the engine.

The problem of hollow blades buckling under certain conditions was also discussed. It appears that blades on the Convair are relatively close to the ground, and in taxiing through slush and through puddles the blades are subjected to considerable stress. Although the blade tips will flex 8-10 inches prior to buckling, many blades are buckling under loads incurred. It was pointed out that slight buckling is not serious but that once the airplane has been flown with the blades buckled it is no longer possible to correct the condition.

•

The men in the propeller overhaul shop of National Airlines have designed a simple oven to heat complete propeller blades while seasoning the rubber heating element used for blade deicing. Using an old metal clothes closet, sound proofing removed from the DC-6, and six 375 watt bulbs, an effective oven was made up. To insure constant temperatures a General Electric thermostatic control is used to control the light operation. Varying ranges can be obtained by adding or removing lights.

•

In the Feb. 1 issue of AMERICAN AVIATION we reproduced a CAA photo showing the results of high temperatures on several types of flexible hoses. Since that time it has come to our attention that the Aeroquip hose shown in the photo was being used in an application contrary to the design features. Aeroquip hose is designed for applications where it is subject to external heat. Its universal use in this type application underwrites its reliability and acceptance. In the CAA tests it was used in a vacuum system where line blockage was used to raise temperatures *inside* the hose. Aeroquip hose has proved of such value in general aircraft applications that it is difficult to restrain its use in applications which the manufacturer does not recommend, i.e., in the oxygen system.

•

Ever see an "angel". If you've watched a radar scope for any period of time you probably have seen an unidentified and moving "blip" on the screen. They have been termed "angels" and much study has gone into tracing the source. Scientists at Bell Telephone Laboratories have decided that the "angels" are actually insects. In the final checking process, observers counted insects in a high power light beam at night while radar operators checked these against the "blips" on the radar screen in the same period of operation.

•

American Airlines' widespread publicity on retirement of the DC-3 from Flagship service may have served a useful company purpose, but it had a negative effect on the many airlines still operating DC-3's. One radio commentator announced that AA was "junking" the DC-3 in favor of the newer, faster and more reliable postwar transports. While some people may "mourn the passing of this grand old plane," the DC-3 is scheduled for a continuing vital part in our national transport system. It is still *the* utility airplane providing a much needed service into the smaller airports (as well as the big ones) where the real market for mass air travel is said to be located. Even looking ahead, the DC-3 is scheduled for a mighty important part in bringing air transport to more and more people, year in and year out.

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SIKORSKY Helicopter NEWS

BRIDGEPORT CONNECTICUT

Do you have any idea of the number of people whose lives have been saved by helicopters? We didn't either, until we checked through the records the other day - and the results surprised even us.

As nearly as we can check, the story begins in January, 1944. A Sikorsky R-4 flew through a blinding snowstorm carrying blood plasma to the victims of a destroyer explosion off Sandy Hook, saving the lives of 70 seamen. Just four months later the Air Force made an "impossible" rescue behind Japanese lines deep in a Burma jungle. Two airmen, downed in an attempt to fly "The Hump", were flown to safety in a Sikorsky R-4.

Scores of other rescues - many of them make dramatic stories - have been made since. During maneuvers by the Navy in the Caribbean, a helicopter, operating for the first time from a carrier, saved the life of a downed Navy flier. Before the maneuvers were over that same Sikorsky helicopter had rescued five more men. Or again; 12 survivors of a plane that had been forced down in the Philippine Sea were saved by an Air Force rescue team flying a Sikorsky R-5.

In yet another dramatic rescue an S-51, piloted by one of our own men, bucked winds of near-hurricane force to snatch two helpless crew men from a storm-lashed oil barge aground on Penfield Reef, Conn.

Operating over land and sea, Sikorsky helicopters flown by the Air Force, Navy, Marine Corps, Coast Guard and civilian pilots have found and rescued people from the wilderness of Newfoundland, the frozen wastes of Labrador and Alaska, the jungles of Nicaragua, a barren desert in California, mountain peaks of China and the nearby waters of Long Island Sound.

And only a few weeks ago helicopters were pressed into service to take medical aid, food and fuel to blizzard victims in the Great Plains states.

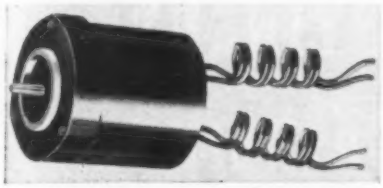
By the time we had finished looking through our files, we found that rugged Sikorsky helicopters had rescued men, women and children in nearly every part of the world. And we don't have a complete record. More stories of this use of these versatile helicopters keep cropping up all the time. To date, at least 200 people have been saved by Sikorsky helicopters - one of the most versatile forms of transportation ever developed. Rescue missions demonstrate just one of their many uses.

SIKORSKY AIRCRAFT

NEW PRODUCTS

Kollsman Servo Motor

Kollsman Instrument Division of Square D. Company, 80-08 45th Ave., Elmhurst, N. Y., has developed a new a.c. servo motor featuring high torque, high speed low inertia, small size and

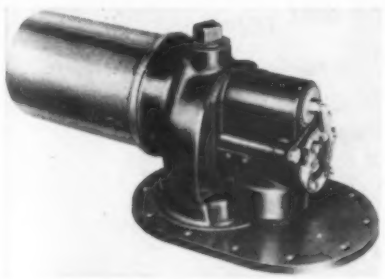


light weight The new motor is a 400-cycle, 115-volt, two-phase, four-pole induction motor with a torque to inertia ratio of 26,300 radians/sec/sec. The motor will fully reverse in 2/10 of a second from 11,200 rpm. Delivering 2½ ounce inches stall torque, the new motor is only 1¾ inches in diameter by 1¾ inches in length and weighs 6.1 ounces.

Kollsman feels the motor will be particularly suitable for servo systems used in aircraft computers, radar direction equipment, automatic pilots, searchlight directors, fire control computers and in laboratory applications.

Submerged Pumps

Romec Pump Co. Division, Lear, Inc., Elyria, Ohio, has introduced a new series of fully submerged pumps for aircraft anti-detonate injection. Employing a viscosity controlled fluid by-



pass to prevent compression of air in the fuel system when the pump is operated on an empty tank, the series RD-8500 pumps (at one valve setting) will pump 210 gallons per hour at 34 psi outlet pressure with maximum amperage draw of 13 at 28 volts D.C.

The relief valve is adjustable to 50 psi outlet pressure with connection for supercharger compensation optional. The pump can be completely enclosed within the water-alcohol tank with electrical and fluid connections located outside the mounting flange. Anti-friction materials in the positive displacement pump permit harmless dry-running.

Motor Driven Alternator

Jack & Heintz Precision Industries, Inc., Aviation Division, Cleveland, Ohio, is marketing a motor driven alternator which converts 60-cycle power to 400-cycle power. Known as the AP50, the alternator is designed for 220/440 volt, 3-phase, 60-cycle A. C. input and 120/208 volt, 3-phase, 400-cycle A. C. output.

The alternator is of the rotating field type with an attached exciter for field excitation. Output voltage is automatically regulated to within plus or minus 6 volts in the 170/250 volt range. Operating voltage is adjustable on the panel. The motor will start at 170 volts and, carrying 25% of rated load starting current on the 220 volt circuit, is not greater than 280 amps at 220 volts. Thermal protectors of the manual resetting type are employed for overload protection.

Solenoid Valves

Carma Manufacturing Co., 2401 E. 103rd St., Los Angeles 2, Calif., has developed a new group of small, lightweight, solenoid-operated valves for air or fluids, suitable for operation over a wide range of temperatures.

Model 10041 is a normally-closed, two-way valve designed for continuous duty at ambient temperatures between minus 65 degrees and plus 200 degrees F. handling air or fluids at pressures up to 12 PSI. It is in use at the present time to control the flow of low pressure air on a late model jet bomber. Weighing only 0.44 lbs., its dimensions are: height, ¼"; width, 1-19/32" and thickness, 1".

Other models, both two-way and three-way, announced concurrently by the company, are capable of handling fluids or gases up to 50 PSI and can operate intermittently at temperatures as high as 450 degrees F. With modifications, these can be rendered capable of continuous operation at that temperature. The Carma firm says it is prepared to design and produce solenoid or hand operated valves and pressure switches to customer design requirements in either experimental or production quantities.

Palmetto Ring Packing

Greene, Tweed & Co., North Wales, Pa., is manufacturing a new line of ring packings for use in reciprocating and static hydraulic struts, cylinders, swivel joints, and similar applications. They are not usable in systems employing continuous rotary motion. Known as the Palmetto G-T ring packing, the new units consist of synthetic rubber T-saction backed up or supported on each side by two non-extrusion rings retainers or guards. The non-extrusion rings are constructed of laminated phenolic material and are split. The synthetic rubber member is under a slight compression and provides the static seal. Under operating pressure the flanged member expands radially against the non-extrusion members keeping them in contact with the surface of the cylinder or piston rod.

The Palmetto G-T ring packing may be used for hydraulic or pneumatic applications as a static seal under constant pressure, with impulsed pressure; or in systems using reciprocating motion with either type pressure. Operating range of the seals is -70 degrees F. to +250 degrees F. and operating pressures range from 0-3,000 pounds psi.

Cold Solder

Alvin Products, Inc. Dept. 33, 20-22 Houghton St., Worcester 4, Mass., has introduced a new all-purpose cold solder known as Lab-Metal. Applied with a putty knife, Lab-Metal hardens to a strong permanent bond. Being free spreading, the new cold solder fills blow holes, sand holes and other surface blemishes or porous places in metal castings and other surfaces. It can be thinned with any regular lacquer thinner and brush painted or sprayed on. The manufacturer claims it will not shrink or crack and is water and rust-proof.

Among Suppliers

Air Associates, Inc. has appointed **W. J. (Jerry) Kane** as sales representative for the area including Washington, Oregon and Idaho. Kane was formerly associated with Panagra in South America and with Douglas Aircraft Co. in foreign sales work

Kane

The Babb Co., Inc. has been appointed distributor for **U. S. Rubber Co.** in the New York metropolitan area. Babb will handle sales and service for the complete line of U. S. Royal aircraft tires for all airlines operating in the New York area.

Marcus Transformer Co., Inc., Hillside, N. J., has appointed **Robert A. Young & Co.** as territorial representative for Southern California and Arizona. The firm's offices are in suite 635, Petroleum Bldg., 714 W. Olympic Blvd., Los Angeles 15, Calif. . . . **The Electric Auto-Lite Co.** has announced its net earnings for 1948 as $12,196,493 or $8.16 per share.

Edward K. Foster has been appointed general manager of Bendix Aviation Corp.'s Radio Communications Division. Foster was formerly assistant general manager of this division . . . **Harold R. Boyer**, director of production engineering for **General Motors Corp., Col. Thomas W. Belshe, Lear, Inc.'s** Washington representative, and **O. C. Hall**, president of **Northern Air Service, Inc.**, have been elected to directorships in **Lear, Inc.**

WILCOX... first choice of MID-CONTINENT AIRLINES

MCA equips entire fleet with WILCOX 70 channel VHF transmitters and receivers

Mr. Daryl Devault, superintendent of communications for MCA, says:

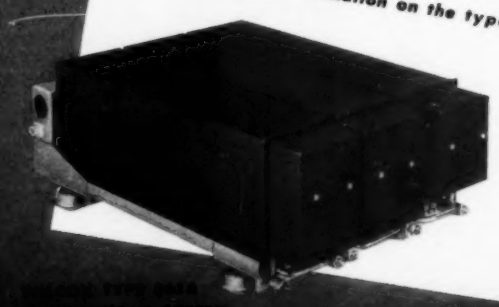
"Wilcox VHF has brought closer the airlines' ultimate goal of all-weather flying — and in doing so it has proved an essential aid to Mid-Continent Airlines in maintaining a perfect safety record dating back to 1934 — and operating efficiency, which in 1948 reached a mark of 98.73 per cent.

"Mid-Continent pilots hail the equipment for the static-free, 'telephone clear' reception it assures them in plane-to-ground communications in all kinds of weather."

For many years Mid-Continent has used Wilcox ground station transmitters and receivers exclusively. Their proven performance, dependability, and easy maintenance earned the confidence of operation personnel throughout the system. That's why Wilcox was first choice again for MCA's airborne communications equipment.

Write Today...

for complete information on the type 361A VHF Airborne Communications System



WILCOX
ELECTRIC COMPANY
KANSAS CITY 1, MISSOURI

FIDO Ready at Los Angeles

By Fred Hunter

"Turn on the FIDO!"

One of these days, soon perhaps, this history-making message will be recorded in the control tower of the Los Angeles Airport, and a DC-6 or Constellation load of passengers will be slipped neatly under a boosted ceiling to land where they're supposed to land instead of being packed off to the Palmdale alternate 50 miles away.

Just what FIDO (Fog, Intensive Dispersal Of) will accomplish in achieving schedule regularity, and what it will cost, should be ascertained in the coming months at the Los Angeles Airport. After numerous delays caused mainly by the shortage of pipe, installation of the first commercial thermal fog dispersal system in the world has been completed, a full dress rehearsal was held Mar. 29 and preparations are now being made for the training of personnel in its use.

The 6,000-ft. long FIDO installation at the Los Angeles Airport is designed to produce ceiling heights as follows:

(1) 400 to 300 ft. in the 2,000-ft. approach zone.

(2) 250 ft. in the 1,000-ft. touchdown zone.

(3) 200 ft. to 75 ft. in remainder of runway.

Full benefit of the thermal fog dispersal system will not come until after the installation of high intensity runway lights and slope line approach lights. Work on both of these is starting at once and following their completion, expected this summer, Los Angeles Airport engineers are confident of obtaining approval of lowered minimums.

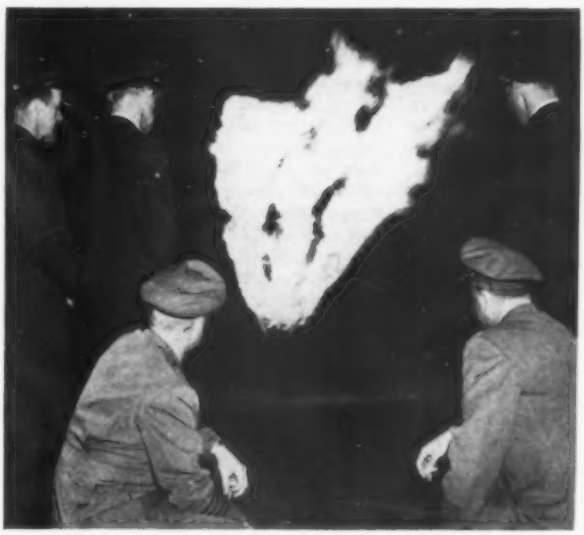
In addition, the Los Angeles Airport also will be equipped by summer with precision approach radar and airport surveillance radar. Gilfillan Bros. now is manufacturing and testing the GCA equipment, and construction of buildings, towers and other facilities for the radar units is under way at the airport.

How It Works. The thermal fog dispersal system, which was developed by Todd Shipyards Corp., is described as the first complete integrated system for thermal fog dispersal and a refinement of FIDO. It is designed to raise the temperature of the atmosphere 3 degrees.

Burning lines extend 6,000 ft. along both sides of the main east-west runway and approach zone. Varying from 400 ft. to 870 ft. from center of the runway, the burners parallel the main runway for 4,000 ft. and then fan 2,000 ft. into the approach zone.

The 392 triads, each mounted with three high-pressure jet-atomizing nozzles, are erected about two ft. above the ground and are spaced from 20 to 75 ft. apart. The cheapest type of diesel oil is supplied to each nozzle under a pressure of not less than 1,000 lbs. The oil ignites instantly by electricity, actuated by toggle switches in a control booth built at the east end of the approach zone.

Oil pressure is developed by two Byron-Jackson double volute pumps, individually driven by 1,000 hp. induction motors. Each nozzle has a maximum capacity of 1½ gallons per minute. Heat required is controlled by varying the back pressure on fuel oil return lines, increasing or decreasing the discharge capacity of the nozzles.



FOG BURNER—Airline pilots observe test burning of thermal fog dispersal unit at the Los Angeles Airport.

The standard grade No. 2 diesel fuel is stored in two vertical cylindrical oil storage tanks, each holding 129,276 gallons. At full capacity, the Los Angeles Airport installation will burn 1,750 gallons of fuel a minute at a cost of approximately 10c a gallon. When the burning line pipes are full, they store 55,000 gallons of fuel. The Todd system is made up of 34,000 ft. of pipe varying in diameter from eight inches to two inches above and below ground.

Improvements developed by Todd Shipyards for the Los Angeles installation include: instantaneous electrical ignition; instantaneous shut-off without drooling, and the variable capacity feature permitting variations in the fuel burned and heat generated to suit actual fog conditions at different times.

$1.50 Per Passenger. Although only actual experience will definitely determine the economics of FIDO, the best estimates are that a 75-ft. ceiling can be burned into a 400-ft. ceiling and visibility of three-eights of a mile can be burned to more than three-quarters in two minutes at a cost of $75 or $80 per landing, depending on the density of fog conditions. It is calculated that a 50-passenger transport can probably be brought in for about $1.50 per passenger under average conditions. This compares with an average cost of $8 to $10 per passenger if an airliner is required to land at an alternate such as Palmdale.

Two kinds of fog are encountered at the Los Angeles Airport. During the summer months, light ground fogs occasionally enshroud the runways. Clarence Young, general manager of the Los Angeles department of airports, feels sure FIDO will disperse these thin fogs in jig time. The heavy fog season comes in the winter months.

The cost of the Los Angeles FIDO system is $842,000. CAA grant under the Federal aid airport program totaled $455,459. The remaining $386,541 was advanced by the city of Los Angeles, but its share has been underwritten over a five-year period by the five participating airlines, American, Pan American, TWA, United, and Western. The carriers also will pay operation and maintenance costs of the system.

Airport Briefs

Edward Detrich, Jr. and **Richard J. Collins** of the Culver City, Calif. Airport have been awarded a five-year contract for the operation of the **Torrance, Calif. Municipal Airport.** Torrance hopes to develop its field as an air freight terminal for the adjacent industrial area of Los Angeles.

Six B-17 type prefabricated steel hangars have been purchased by the State of California from **Anderson Aircraft Corp.** of Los Angeles for $225,000. Similar buildings have been sold to the governments of Mexico, Chile, Puerto Rico, Siam, and Saudi Arabia, as well as to airlines and cities in this country. Measuring 147 ft. wide by 162 ft long, the hangars provide a clean span unobstructed floor area.

A unique air freight farm service has been established by **Rip Chapman** and **R. R. Robertson,** operators of the Lancaster, Calif. Airport, to serve ranchers in the Antelope Valley. Deliveries of seed, tractor repair parts and other items are made in the open fields on the flat valley floor to save time in the planting season.

Chicago 1st in Airline Operations

Air carrier landings and take-offs at the country's 25 busiest air terminals rose about 11% last year, as compared with 1947 operations, with Chicago Municipal Airport topping the list for the first year since the Civil Aeronautics Administration started its records of control tower postings.

Movements of air carrier aircraft at the 25 top fields totaled 1,655,265 in 1948, as compared to 1,494,754 in 1947. Despite this increase, the percent of total landings and take-offs represented by airline planes dropped a little, from 34.1% to 33.8%, reflecting an increase in non-airline flying.

Air carrier on-and-off operations at Chicago rose from 131,663 in 1947 to 138,174 last year, while the total at La Guardia Airport dropped from 140,291 in 1947 to 128,530 last year. Newark Airport, at the same time, showed an increase from 50,099 air carrier landings and take-offs to 60,680, indicating a diversion of traffic from La Guardia. Washington National Airport held to third place, with its air carrier movements rising from 105,224 to 114,168.

Miami's standing dropped from 4th to 6th, while Los Angeles' climbed from 5th to 4th and Detroit's from 9th to 5th. Baltimore, which was in the first 25 in 1946 but failed to make the list in 1947, got back in last year. Houston got in the top group last year for the first time.

Air carrier plane movements at the entire 143 airports where the CAA has control towers totaled 3,257,941 last year, for a 14% increase over 1947 operations. Total landings and take-offs at these fields last year numbered 18,393,868, of which the air carrier operations accounted for 17.7%.

Locally-based military aircraft made 1,522,099 movements or 8.3% of the total, itinerant military aircraft accounted for 727,016 movements or 4.0%, and itinerant civil (non-airline) planes made 2,499,941 landings and take-offs or 13.6%.

Locally-based civil aircraft used for personal business or pleasure, flight instructions and charter operations accounted for 56.4% of the flight activity at the 143 airports, making 10,376,869 landings and take-offs during the year.

Aircraft Operations at 25 Leading Airports*

(1948 Compared With 1947)

1948 Ranking		Air Carrier Operations	% of Total Operations	1947 Ranking	Air Carrier Operations	% of Total Operations
1.	Chicago (Mun.)	138,174	62.7	2	131,663	63.9
2.	La Guardia	128,530	81.7	1	140,291	82.7
3.	Washington	114,168	70.6	3	105,224	65.9
4.	Los Angeles	83,051	51.7	5	73,339	44.9
5.	Detroit	81,138	73.9	9	64,315**	83.4
6.	Miami	79,225	42.3	4	82,062	42.6
7.	Pittsburgh	77,674	51.1	6	68,457	50.1
8.	Cleveland	76,512	17.4	10	62,976	12.1
9.	San Francisco	75,927	57.3	7	67,585	42.2
10.	Kansas City	66,078	27.6	11	58,163	26.8
11.	Dallas	65,325	51.4	8	64,662	53.2
12.	Boston	62,731	55.4	12	55,957	62.0
13.	Newark	60,680	54.2	14	50,099	44.3
14.	Philadelphia	59,098	63.0	17	45,112***	71.7
15.	St. Louis	56,507	24.2	13	50,630	26.1
16.	Atlanta	52,588	15.5	15	48,489	52.1
17.	Cincinnati (Covington)	45,693	43.2	19	39,111	36.9
18.	Oakland	45,692	18.7	20	35,004	15.2
19.	Denver	45,163	25.1	18	43,335	19.5
20.	Jacksonville	44,844	43.5	16	48,489	52.1
21.	Burbank	40,530	30.1	24	34,112	21.6
22.	Minneapolis	37,572	15.8	29	31,557	9.8
23.	Indianapolis	37,370	13.4	22	34,359	13.0
24.	Houston	34,518	32.5	33	27,143	20.7
25.	Baltimore	34,477	28.4	27	32,620	19.3
Totals		1,655,265	33.8		1,494,754	34.1
Total for all CAA towers in '48		3,257,941	17.7			
Same for 1947		2,854,481	16.2			

* Landings and take-offs.
** Covers last 11 months of year only.
*** Covers operations at Southwest Airport for last 9 mo. of year.

AIRPORT PROFIT FORMULA:

Keep Out of Politics, Make Concessions Pay

Want to put your airport in the black? Douglas O. Langstaff, manager of the big Moisant international airport at New Orleans, has a formula which works.

His formula is (1) to get the airport operation out of local politics and (2) make the concessions pay a lot of the freight.

In the three years since Moisant Airport has been in operation as an all-airline terminal, Langstaff has socked away in the bank a clear $300,000 in operating profit. He hasn't asked for a dime from the city and he reports only to the non-political New Orleans Aviation Board. The city can't touch the airport revenues.

Langstaff

Not long ago Langstaff sold a concession to a tailor and pants' presser, probably the first such concession on any airport in the world. It's paying off and the airport gets 10% of the gross with $75 a month minimum. Dobbs House operates a good restaurant, a very profitable snack bar, news-stand and souvenir shop. Taxis and limousines pay 10c per passenger carried to and from the airport. There's also a barber shop and a shoe shine stand.

Ad Revenue. All passengers deplaning are handed a map of the city of New Orleans on which is sold advertising space for restaurants, night spots and amusements. Langstaff gets a percentage of the advertising revenue on the give-away map.

He keeps a full-time fire department of 5 men per shift on the field and one fireman and one policeman are on the ramp at all times. A cleaning gang is busy at all times to keep the terminal and the area clean.

Langstaff has set up his own ramp procedures which do away with specific gate positions for individual airlines. It's first-come, first-served, with a 30-minute parking rule. The ramp is operated by the airport and Langstaff hopes in time to take over all ramp equipment. The airport controls porters for seven of the eight airlines using the airport and the eighth line, National, is now negotiating to use the service.

The Moisant terminal building is a large hangar, not very attractive on the outside, but roomy and airy inside. Eventually a permanent terminal will be built, but Langstaff says he hasn't seen a good one yet and wants to spend time planning the thing right. He hasn't installed high intensity runway lights yet, either, for the same reason. He wants to be sure he has the right lights when he buys them.

BREAD... so millions may live!

Out of a Berlin bakery, this German child trundles bread made from flour flown in by American pilots in Douglas planes.

A marvel of modern mass transportation, the Berlin Air Lift was made possible through the courage and efficiency of Air Force personnel, *plus* the foresight and creative skills of Douglas craftsmen and engineers. For, ready to meet this need—as they were ready to meet the needs of war—were fleets of Douglas DC-4s (Army C-54... Navy R5D) —backbone of the Air Lift.

Realizing the vital importance of *dependable* air transport—both military and commercial—Douglas continues to pioneer new transport models. Now under construction is the new DC-6A air freighter capable of flying loads up to 30,000 lbs. at 300 mph. Future operations, utilizing the DC-6A, will require half as many planes, three-fourths the men, and reduce operating costs one-third, compared with present Berlin Air Lift requirements.

DOUGLAS AIRCRAFT COMPANY, INC.

Trans-Atlantic Round Trips To Hit Peak of 152 Weekly

By Eric Bramley

Anticipating heavy summer business across the Atlantic, the U. S. and foreign airlines operating on the ocean routes will have at the peak of this season a record total of at least 136 round-trips weekly to Great Britain, Europe, Scandinavia, Africa and points east, of which over 72% will be flown by the three U. S. carriers. If round-trips from Montreal are included, the weekly Atlantic total will be 152.

Far out in front will be TWA, which plans to have 52 round-trips weekly by June to such points as Paris, Rome, Cairo and Bombay. This is twice as much frequency as will be offered by the second carrier, Pan American Airways.

Weekly Round-Trips Planned By Trans-Atlantic Airlines

From U. S.

TWA	52
Pan American Airways	26
American Overseas Airlines	21
Air France	9
KLM Royal Dutch Airlines	9
Scandinavian Airlines System	9
British Overseas Airways	5
SABENA Belgian Airlines	3
Swissair	2
	136

From Montreal

Trans-Canada Air Lines	14
BOAC	2
	16

The 136 total from the U. S. is somewhat ahead of last year, when peak schedules were about 120 round-trips weekly. With advent of more DC-6's and Constellations, and the introduction of the Boeing Stratocruiser, substantially more seats will be available.

TWA alone will offer 38.2% of the total weekly schedules to and from the U. S. The three U. S. lines will furnish 72.8%, with six foreign carriers flying 27.2%. Last summer the foreign lines flew about one-third of the total. Of this summer's trips, only one or two of the entire total will be all-cargo flights. And the figures, of course, do not include extra sections which may be operated.

TWA's schedules will increase from 44 in April to 46 in May and 52 in June. Although exact figures are not available, this will represent an increase over last year. Constellations and DC-4's will be used.

Pan American Airways plans 26 round-trips weekly by July 15, an increase of four or five over last summer's peak. The company will be using Constellations, DC-4's and Stratocruisers. Two all-cargo DC-4's weekly will be in addition to the 26 total.

American Overseas Airlines, which last year operated 22 round-trips a week, will fly 21 this summer, using Constellations and DC-4's, with Stratocruisers slated to come later.

Competition. Of the foreign operators, three will furnish the same number of trips. Air France, starting sometime in May, will operate nine weekly with Constellations, the same number as last year. KLM Royal Dutch Airlines will fly nine starting May 16 with Constellations, while Scandinavian Airlines System plans nine beginning the same date. SAS will use DC-6's. KLM and SAS also flew nine each last year.

British Overseas Airways Corp. is not yet definite on its plans, but will have at least five round-trips by June, compared with six last year. Constellations will be used.

SABENA Belgian Airlines plans three schedules beginning May 16, the same as last summer. DC-6 equipment will be flown. Swissair will operate once weekly to May 30 and twice weekly thereafter, with DC-4's.

From Montreal, Trans-Canada Air Lines will fly 14 round-trips weekly starting June 1, using North Star aircraft, the same number of trips operated last summer. In addition, BOAC will have at least two Montreal departures weekly.

Excursion fares which have been in force this past winter will not be available during the summer season. Round-trip New York-London fare under the excursion rate has been $466.70, but this summer it will return to the regular $630, or $163.30 more. The one-way fare of $350 was not affected by the excursion tariffs. Even with the higher regular fares, U. S. airline officials are confident that this summer's traffic will be substantial.

How Braniff Promotes Sales Technique

Braniff Airways, among other airlines, has been putting increased emphasis on making certain that its personnel use the telephone as a sales instrument.

Since publication in American Aviation Mar. 15 of the story on Capital Airlines' sales conference at which a skit, featuring check calls, emphasized the shortcomings of present telephone sales, a number of airlines have renewed efforts to make certain that telephone agents are salesmen and not just "order takers." Some airlines reprinted the article and distributed it to personnel.

Brack

Braniff has been using a technique similar to Capital's, but has gone a step further and required that executives traveling on company business must make at least two monitoring calls and report the results to the home office on the reverse side of their expense reports.

"Last November," says Reginald ("Rex") Brack, Braniff's general traffic and sales manager, "it came sharply to our attention that not only might our selling agents (reservationists and ticket clerks) be somewhat lacking in sales finesse but also that our techniques for completing actual sales might need to be put in modern dress.

Missing Opportunities. "Our people were failing to grasp the simple opportunity to sell the person who voluntarily called upon Braniff. We felt we should bring them to the realization that a customer who calls us is sold on us and wants our service, or he would never have dialed our number or entered our ticket office.

"Accordingly, we mapped an audible-visual quick conversion and training program. We recorded telephone conversations, prepared skits and framed a flesh-and-voice show that would demonstrate our principles, and at the same time impinge with greatest influence upon the persons attending our meetings. These meetings were held in key cities of our system.

"We brought to them our district traffic managers, station managers, and reservations and ticket supervisors. Jack Brough, director of ground operations, the two regional traffic managers, Bob Phinney and Bob Burck, and several others, including myself, took the show on the road.

"The fast-paced show was most effective. However, skits, recordings and addresses were one thing; we still needed to present proof to those present that we had a real point to make. Therefore, from each meeting we placed station-to-station long-distance telephone calls back to system offices represented by personnel present.

Startling Results. "To the reservationist answering the phone we placed a typical inquiry regarding space, being careful to use examples that presented possibilities of using Braniff or another carrier. It was a startling experience, especially to those who had come, en-

joyed the show but still felt complacent. They heard some of their best personnel selling their own stations to another line. Not that all examples were grist for our meeting—fortunately not. But the point was made with telling effect.

"We followed these road show demonstrations with a monitoring system. Executive and administrative traffic personnel, when traveling the system on company business, are required to make at least two monitoring calls to test the continuing effectiveness of the program, and report them to my office on the reverse side of their expense reports.

"We also developed a new type of sales information book that enabled our people quickly and easily to effectuate our on-line selling program. As an experiment, we created a new job classification, sales supervisor, and put a good man to work at one of our largest local sales offices. The polish he has been able to put on the selling techniques of our sales personnel in that one office is indeed a revelation."

More Attention to Cargo

Encouraged by its performance of 22 million ton-miles of air freight last year, American Airlines last fortnight raised its air freight operations to major departmental level and designated a vice president, **Amos Culbert**, to work directly with operations and sales officials in the "streamlining" of its cargo functions.

Improvements in the regularity and on-time performance of all-cargo schedules and in the handling, dispatching and other procedures of the cargo service are the aims of the new policy. Except in cases of urgency or emergency, unscheduled stops of all-cargo planes will be eliminated.

Tariffs & Tours

Chicago & Southern Air Lines is offering seven all-expense air cruises to the Caribbean, including two to Cuba, one to Cuba and Jamaica in combination, two to Miami and Havana, one to Jamaica, and one (15-day) to Cuba, Jamaica and Venezuela. Reduced air fare plus low summer hotel rates result in an overall rate as low as $146.90 New Orleans-Havana for a week at a deluxe hotel.

Pan American Airways is not charging extra fare on its U. S.-Hawaii Stratocruiser schedules. Berths are available on night flights at $25. There are three flights weekly out of both San Francisco and Los Angeles.

TACA Airways on May 15 will institute summer vacation fares 25% under regular tariffs for travel between New Orleans and Central America.

Braniff Airways has reduced berth charges on Houston-Lima-Rio flights to $10 a night for an upper and $20 for a lower. Company claims it is the lowest charge ever made by a U. S. carrier for domestic or international flights.

Over the Counter

By Eric Bramley

Sales Promotion

ATTENTION all traffic, reservations and passenger service personnel. Someone has finally started a contest just for you. Wanta win an all-expenses-paid week's vacation for yourself and husband or wife at a dude ranch? You don't have to buy anything. Just answer, in 250 words or less: "What Can Your Passengers Expect to See and Do When They Fly **Monarch** and **Challenger Airlines'** Scenic Skyways of the West?" See the ad in the Apr. 1 issue of AMERICAN AVIATION or the April issue of *Official Airline Guide* for full details. Jerry Kitchen, traffic and sales manager for both airlines, has been pushing the contest for a good purpose. Both lines have been giving other airlines more business than they get back, and he wants to even up this inter-line traffic. The contest should be an extremely effective way of familiarizing personnel of other airlines with what Challenger and Monarch have to offer. Just a little bit of time spent finding out what these companies have to offer may win you a very nice vacation. Go to it.

Chalk up some on-the-ball sales promotion for **Casey Britt, Capital's** Washington district sales manager, and his staff. The day before Capital's Washington-Chicago air coach service started, Britt, **Larry Frost**, operations manager, and several staff members, bought up 4,000 copies of a Washington newspaper. Across the front page of each copy they pasted a big sticker calling attention to the air coach ad on page 3. They then put a copy under each room door in 20 hotels, finishing at 5 a.m. Better yet, Britt has made a deal with a couple of laundries through which he will get some advertising on the paper bands which the laundries put around men's shirts. The bands, which men can't help seeing when they go to the drawer for a clean shirt, will say "Fly Capital Airlines' Aircoach." Britt will furnish the bands at $1.11 per thousand. The two laundries he's contacted so far handle 120,000 shirts a month.

Pan American Airways' recently rewritten system sales manual is a work of art. Very easy to read, illustrated with humorous cartoons, it's going to be an invaluable sales aid to PAA personnel. Company has also rewritten six other sales manuals, covering technical phases of the business . . . **British Overseas Airways Corp.** is continuing its eye-catching advertising. Recent newspaper ad translates the BOAC initials into "Badge of Air Courtesy."

A lot of airlines, it seems, have been missing a lot of bets on selling air parcel post. **United Air Lines**, however, has come out with a chart revealing a lot of things about air parcel post that aren't readily discernible to a mailer. Did you know, for example, that any package weighing from one pound 12 oz. on up will go via air parcel post just as cheaply as by first class surface mail on distances up to 600 miles? Or that a package from 2½ lbs. up will go as cheaply on distances up to 1,000 miles? These are a few of the things the UAL chart shows. Should sell some business . . . **United's** 1949 "Fly United to Vacationland" booklet is being distributed.

Northeast Airlines' latest sales idea is distribution of a booklet entitled "The Company We Keep." It includes testimonials from prominent people who have used the Yankee Fleet. The testimonials had previously appeared in NEA newspaper ads . . . **United Air Lines** has renewed spot television advertising in Los Angeles, Chicago and New York, and has increased similar advertising in San Francisco and Seattle.

Add sightseeing: **Northeast Airlines** started Sunday flights ($2.50 tax included) at Boston on Mar. 27 and may extend them to other stations later. **Northwest Airlines** started similar flights at Washington (same price) on Apr. 3. **Capital Airlines** has flown more than 2,000 sightseers over Washington and Pittsburgh since start of flights several weeks ago.

Passenger Service

SABENA **Belgian Airlines** is taking group pictures of passengers on each trans-Atlantic departure from New York. Print of the picture is sent to each passenger's home address in a gold-stamped, royal blue folder with a suede finish. Travel agents also receive copies to send to each passenger they have booked.

Challenger Airlines is circulating to all company personnel copies of nice letters it receives regarding its passenger service. The copies to personnel are on blue paper, which bears a heading "Orchids to Challenger" . . . **British Commonwealth Pacific Airlines** is going in for passenger service on its DC-6 service between Australia and San Francisco-Vancouver. It books only 36 passengers, but carries three cabin attendants.

Tighter Rental Rules Needed For Lower Insurance Rates

A new standard aircraft lease agreement with enough legal "teeth" in it to discourage illegal or careless use of rented personal aircraft is reportedly bringing good results for fixed-base operators who have adopted it at the suggestion of the California Aviation Trades Association.

The agreement, containing 12 clauses, was worked out in consultation with underwriters and attorneys, and its terms are specific and legally binding. Patterned somewhat after the aircraft rental form worked out last year by the National Aviation Trades Association, the California agreement is designed to give a renter pilot a sobering impression of his responsibilities.

The clause which carries the most kick is the lessee's agreement to pay for any loss or damage caused by his failure to comply with the terms of the contract or by his negligence. That obligates him to pay the bill if he doesn't fly the airplane according to Hoyle.

The form used is an easily handled card suitable for simple filing. It is filled out with the usual data pertaining to the renter's name, address, pilot certificate, medical certificate, age and ratings. The agreement itself follows for signature by the renter. The reverse side of the card carries the flight record, including purpose of flight, destination and route, time out, estimated return and so on. The contract agreement is as follows:

On each flight made by me subsequent to this date in equipment owned or operated by the above named lessor, I agree to comply with the following requirements:

(1) I will inspect and make a ground check of the aircraft, its equipment and accessories before takeoff and will not accept said aircraft until I am satisfied as to its airworthiness and proper functioning of said equipment and accessories.

(2) I will return the aircraft at the agreed time, weather permitting, and will return it in the same condition that I received it, normal wear and tear excepted.

(3) I will use the aircraft only for the purpose and over the route specified for each flight as noted on the reverse side. Data called for on the reverse side may be entered by lessor or his representatives thereby becoming part of this contract for each individual flight.

(4) I will observe all federal, state and local air safety regulations.

(5) I will fly only in daylight hours and only in contact weather.

(6) I will obtain weather reports and forecasts immediately before going cross-country and will not fly when ceilings are or are forecast to be below 1,000 ft. and visibility below 3 miles.

(7) I will allow no one else to fly the aircraft.

(8) I will land only at established airports except as a precautionary measure or emergency measure, when reasonably necessary.

(9) I agree to pay for any loss or damage to the aircraft or to other persons or property caused in whole or in part by my failure to comply with the above, or by my negligence.

(10) I agree to report all accidents, major and minor, to the lessor at once, together with names and addresses of witnesses and involved parties, and in the event of accident will not move airplane unless expressly authorized to do so by lessor.

(11) I agree not to tamper with, molest or attempt to repair any part of the aircraft or its accessories but will telephone the lessor collect for instructions as to what to do in the event of a malfunction of any part of the airplane or its accessories.

(12) I expressly agree to and hereby indemnify and hold lessor harmless of, from and against any and all loss, costs, damages, Attorney's fees and/or liability in connection with the foregoing contract.

CATA drafted the form when underwriters served notice on fixed-base operators that they could not expect to see their insurance rates reduced unless they revised their practices in regard to the renting of planes. The renter pilot, they said, is the cause of a high percentage of personal aircraft accidents and thus is a prime reason for high insurance premiums.

There's one thing for sure. The pilot who signs CATA's rental agreement will know he has to mind his P's and Q's—or else.

CAA Promises Non-Sked Group Bigger Policy Voice

The non-airline segment of the civil aviation has been promised a stronger voice in the making of government policies and regulations affecting this phase of the industry.

The proposal, as outlined at the recent quarterly meeting of CAA's Non-Scheduling Flying Advisory Committee, is to change the committee to a board and set up a plan for rotation of membership so that new thoughts and ideas would be forthcoming on a continuing basis.

Civil Aeronautics Administrator Delos W. Rentzel said the change would be effected in the near future.

An unusual number of suggestions came out of the committee meeting, perhaps the major one being Dr. Lynn Bollinger's resolution pertaining to certification of non-transport type aircraft. This proposed that:

The manufacturer should be permitted as an alternative to the present engineering analyses or static load tests to substitute, at his choice, actual flight tests such as to impose loads on structure up to the design limits prescribed by the Civil Air Regulations. CAA should then leave all responsibility for engineering and structural decisions to the manufacturer, so long as the completed aircraft passed load limit tests and control and stability requirements.

When CAA questions the serviceability of unconventional design, dimensional or structural features of the plane, however, the manufacturer may be required to prove the item by a reasonable service test.

Another resolution requested that a proposed revision of Manual 50 of the CAR, pertaining to airmen's agencies, should be delayed and the present regulations kept in force "with considerable flexibility in its enforcement by the field force of CAA."

Recommendations. Other proposals were:

(a) That CAA set up a committee of non-Weather Bureau people to work out a program of better weather information for pilots and for more sources of weather information.

(b) That a committee be appointed to give consideration to establishment of rules and regulations permitting limited instrument operations by private pilots, particularly in the air taxi category.

(c) That CAA's airport program include the construction of landing strips adjacent to established highway custom and immigration offices at Mexican and Canadian border points for the benefit of private pilots.

(d) That there should be set up a cross-country training program wherein four-place ships would be used by an instructor and three trainees.

(e) That CAA continue to push its cross-wind landing gear program and give increased recognition to its potentialities by providing more Federal-aid funds for construction of single landing strips.

(f) That a course be set up at the Aeronautical Training Center at Oklahoma City to train CAA agents in public relations and press relations.

The next meeting of the committee will will be held in June.

Piper, Aeronca, Monocoupe Offering Six '49 Models

Fixed-base operators, aircraft distributors and private flyers are getting a look at six 1949 models now being produced by three lightplane manufacturers, Piper Aircraft Corp., of Lock Haven, Pa.; Aeronca Aircraft Corp., of Middletown, Pa.; and Monocoupe Aircraft & Engine Corp., of Melbourne, Fla.

Piper's new model, on which deliveries have been started, features an extra seat for a fourth passenger and a 115 hp engine instead of the 100 hp engine used in the earlier models of the Piper Cruiser. Known as the Family Cruiser and designated the PA-14, the plane sells for $3,995 f.a.f., fully equipped. Its specifications are:

Engine, Lycoming O-235-C1; gross weight, 1,859 lbs.; useful load, 830 lbs.; top speed, 123 mph; cruising speed, 110 mph; range, 550 miles; fuel capacity, 25

PIPER'S FOUR-PLACERS—Here is a lineup of Piper Aircraft's 1949 offerings in four-place planes, the category of personal plane types which was way out in front in last year's sales. From left to right, they are: Piper Clipper (115 h.p., $2,995); Family Cruiser ($3,995); and Piper Stinson ($6,484).

gals.; baggage capacity, 80 lbs.; wing span, 35 ft. 5 in.; and length, 23 ft, 3 in.

Aeronca's two new models, the 1949 Aeronca Sedan and the 1949 Aeronca Champion, are both approved as seaplanes and skiplanes. The Champion, price at $2,545 f.a.f., Middletown, is slanted toward use for aerial spraying. It features improved short take-off, steep climb angle and load-carrying performance.

The Sedan features heavier doors and new door hinges and window channeling to provide lower interior noise level. Other improvements include: a heavier engine cowling, a new type stirrup-step entrance; redesigned seat backs and seats made from Air-Foam and Nu-Kraft materials.

Monocoupe's 1949 line of two-place planes consists of a 115 hp Standard, 115-hp DeLuxe, and a 185hp Clipped Wing Model 110. The 115 hp models have a cruising speed of 140 mph and a top speed of 160 mph. Specifications for the Model 110, which is a high-wing, two-seat cabin monoplane with fixed landing gear, are:

Engine, Warner Super Scarab 7-cyl.; gross weight, 1,640 lbs.; empty weight, 1,040 lbs.; cruising speed, 175 mph; maximum speed, 200 mph; initial rate of climb, 3,000 ft. per min.; span, 23 ft. 2½ in.; and length, 20 ft. 5 in.

People

August C. Esenwein, formerly vice president and general manager of Aviation Maintenance Corp., of Van Nuys, Calif., which he helped found, has been elected executive vice president and general manager of Piper Aircraft Corp.

Sydney Carter has resigned as advertising and public relations manager for Luscombe Airplane Corp.

Capt. Bill Odom, who recently established world light plane distance record in Beech Bonanza, will be sent around country by Beech Aircraft Corp. in campaign to sell public on personal aircraft. He will appear before local clubs and business groups at meetings arranged by local Beech distributors.

New CAA Penalty Approach Offers Pilots Better Deal

Critics of the Civil Aeronautics Administration's procedures in dealing with reported violations of the Civil Air Regulations were mollified a bit last month when CAA General Counsel's office revised and toned-down the "Civil Penalty Letter" usually sent to alleged violators by CAA regional attorneys.

The letter previously used had been widely criticized by organizations such as the Aircraft Owners and Pilots Association on the grounds that it indicated an assumption on CAA's part that the addressee was guilty, that it did not make the pilot's legal rights clear, and that it in effect sought to "sandbag" the alleged violator into offering a compromise settlement whether guilty or not.

The old letter started right out by naming the practice of which the addressee was accused and then stating flatly that " this indicates that sections 60.105(a) and 60.101 of the Civil Air Regulations, and section 610(a) of the Civil Aeronautics Act of 1938, as amended, have been violated."

The revised letter modifies this paragraph by asserting that "this information *if correct,* indicates, etc.," which is quite an improvement.

High-Handed. Previous handling smacked of a highway speed trap in which a motorcycle officer nabs a Sunday motorist and gives him an alternative of going before a nearby Justice of the Peace then and there and paying a fine or coming back to court the next day. The letter apparently gave the alleged violator an alternative of going to court or of sending in a compromise check, together with such explanations or evidence as he wished to submit.

It said nothing whatever about his right to submit such material to the Administrator without sending along a compromise offer, and for this reason it was considered grossly unfair, because most pilots would prefer to send in a compromise offer and a check rather than go to the expense and trouble of hiring an attorney and fighting the case in court. Furthermore, few of the alleged violators realized that a compromise of this nature meant the recording of a violation against their license.

The old letter was rescinded by order of Acting General Counsel Robert P. Boyle, who has instructed CAA regional attorneys to use a new form letter much less blunt and high-handed. After listing the alleged activity and saying that this information, if correct, indicates a violation, the new letter goes on to say:

"If you have any information or material relative to this matter either to explain, excuse, or disprove the violation, you may be sure that it will receive our careful consideration. Such information may be submitted by you in person at my office. If you prefer, it may be submitted in writing.

"I wish to assure you that there is no requirement under the Civil Aeronautics Act that you make an offer of settlement as suggested in this letter. If you prefer, you have the right to have any issues in this matter presented to the U. S. District Court (which) will determine whether a violation has in fact occurred and the amount of civil penalty, if any, which will be imposed. If you desire to have the matter determined in this manner, you may indicate your intentions by so advising me or merely by disregarding this letter."

It gives the addressee 10 days in which to submit a compromise offer or additional information concerning the alleged violation.

This letter answers most of the objections that had been raised against its predecessor, but it still does not make it clear to alleged violators that they subject themselves to possible suspension of revocation of their licenses if they submit a compromise offer as a matter of convenience.

"SAFETY IS NO ACCIDENT"

A Statement by SIGMUND JANAS, President, COLONIAL AIRLINES

Colonial Airlines has just completed *19 consecutive years of scheduled airline service*, flying approximately 250,000,000 miles without a single passenger or crew fatality! This is a safety record unequalled in the annals of commercial aviation!

We enter upon our 20th year of safety in operation with a greater appreciation of our responsibilities in the future . . . and pledge a continuance of the vigilance and maintenance and performance which have contributed so much to our achievement.

For swift, safe, dependable air transportation FLY COLONIAL . . .
Call your travel agent or freight forwarder for particulars—or MU 6-5515

COLONIAL AIRLINES

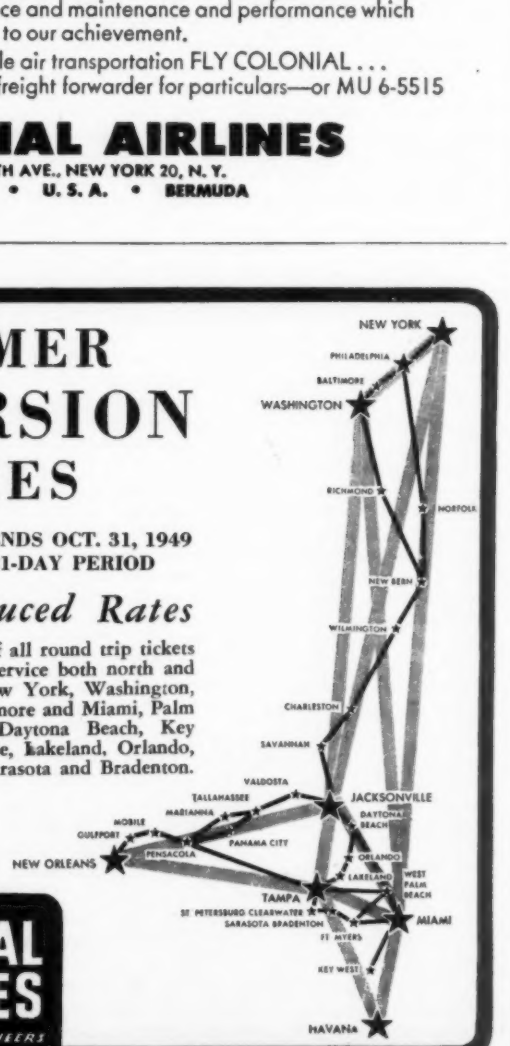
630 FIFTH AVE., NEW YORK 20, N. Y.
CANADA • U. S. A. • BERMUDA

SUMMER EXCURSION FARES

EFFECTIVE MAY 15 - ENDS OCT. 31, 1949
TICKET COVERS 21-DAY PERIOD

Greatly Reduced Rates

The return trip portion of all round trip tickets has been reduced 67%. Service both north and south bound between New York, Washington, D. C., Philadelphia, Baltimore and Miami, Palm Beach, St. Petersburg, Daytona Beach, Key West, Tampa, Jacksonville, Lakeland, Orlando, Ft. Myers, Tallahassee, Sarasota and Bradenton.



Fly with Confidence on

NATIONAL AIRLINES

ROUTE OF THE BUCCANEERS

Briefing the News

Dates for several events of interest to flying enthusiasts and local operators have been announced as follows:

A business clinic for base operators sponsored by the Alabama Dept. of Aeronautics in Miami on Apr. 27-28.

Florida State Air Tour, sponsored by Aviation Division of State Improvement Commission, Apr. 27-28-29.

Second Annual Michigan Pilots' Regatta, to be flown from Capital City Airport at Lansing on June 5.

Michigan Aviation Week, sponsored by Aero Club of Michigan, embracing 16 events from June 3 through June 12.

Aviation Progress Exposition of Maryland at Baltimore Municipal Airport, May 21-22.

All American Air Maneuvers at Miami have been tentatively scheduled for Jan. 13-15.

Third annual All-Woman Air Show will be held in Miami, June 4-5, to coincide with observance of All-Woman Air Week.

* * * *

The **Personal Aircraft Council** of the Aircraft Industries Association has prepared for distribution more than 6,000 copies of **"A Guide to Improved Public Relations for the Fixed-Base Operator."** Booklet meets a definite need and should be well received. Distribution is being made through PAC members and their distributors.

Regan Flying Service at Municipal Airport No. 1, Shawnee, Okla., is sending a letter to owners of executive type aircraft inviting them to visit Shawnee as the guest of Regan on their next flight that way. As inducements, G. Ray Cullman, manager, lists desk space, typewriter and adding machine, free stenographic service, free transportation to nearest restaurant, free hot coffee at any hour; free transportation to town; free beds in clean, heated guest rooms for overnight transient pilots and/or passengers, clean, heated rest rooms for both sexes, and shower baths. "Your home away from home, your office in the field," is Cullman's slogan.

During the seven months ended last Jan. 31, the Veterans Administration **approved 15,081 applications for G. I. Flight Training** out of a total of 30,343 received. Of the 15,262 applications deferred for inadequate justification, advisement had been completed in 3,496 cases, resulting in approval of 1,769 and disapproval of 1,727.

Monsanto Chemical Co. has announced development of an aircraft finish which will resist the chemical action of certain insecticides used in crop spraying and dusting operations. Called Skylac, the finish also is reported to have exceptional flame-resistance and high gloss qualities. Bell Aircraft Corp. is applying Skylac to all commercial helicopters leaving its factory and is recommending that commerical operators of Bell helicopters use it in refinishing exterior surfaces.

U. S. Domestic Airline Traffic for January

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton Miles	Express Ton Miles	Freight Ton Miles	Total Ton Miles Rev. Traffic	Available Ton Miles Flown	% Available Ton Miles Used	Revenue Plane Miles	Scheduled Miles	% Scheduled Miles Completed
American	183,923	99,086,000	161,629,000	61.30	774,917	431,338	1,808,445	12,864,548	22,071,230	58.29	3,964,704	4,303,725	89.00
Braniff	34,985	12,203,000	27,445,000	44.46	87,144	61,189	67,606	1,387,050	3,341,845	41.50	844,667	966,796	86.71
Capital	63,723	18,943,000	45,571,000	41.57	93,045	140,776	415,057	2,460,600	5,936,680	41.45	1,390,889	1,601,145	83.97
Caribbean	7,231	524,000	1,290,000	40.62	721	. . . .	2,487	45,266	120,556	37.55	52,760	52,911	98.96
C & S	17,216	6,177,000	13,747,000	44.93	42,944	34,544	32,509	703,451	1,599,270	43.99	518,509	633,877	81.29
Colonial	10,078	2,754,000	5,156,000	53.41	7,290	3,330	4,755	293,402	662,483	44.29	245,525	288,561	83.93
Continental	9,589	3,680,000	10,919,000	33.70	16,381	6,704	19,754	395,397	1,141,168	34.65	432,032	465,620	90.33
Delta	33,564	16,012,000	29,158,000	54.91	76,073	54,087	115,749	1,787,688	3,943,060	45.34	978,606	1,111,880	87.32
Eastern	150,990	78,406,000	137,414,000	57.06	434,141	320,397	638,559	9,571,944	21,214,259	45.12	4,210,394	4,609,978	89.66
Hawaiian	26,239	3,763,000	5,515,000	68.23	3,878	10,375	33,968	360,170	587,146	61.34	244,079	188,454	92.69
Inland	5,947	1,904,000	3,419,000	55.69	10,408	5,409	7,204	205,067	354,971	57.77	172,224	198,028	83.96
NCA	18,413	5,626,000	11,863,000	47.42	22,493	10,661	16,242	588,507	1,273,417	46.21	565,963	669,538	82.50
National	24,555	15,134,000	31,236,000	48.45	48,159	37,750	82,590	1,715,173	4,496,023	38.15	774,118	774,609	94.70
Northeast	16,998	3,281,000	7,556,000	43.42	7,693	7,236	11,160	323,878	753,235	43.00	249,735	296,597	82.08
Northwest	34,370	17,853,000	44,206,000	40.39	180,624	132,601	249,122	2,320,863	5,492,517	42.25	1,228,110	1,398,036	86.78
TWA	75,071	55,518,000	110,985,000	50.02	684,045	386,194	753,109	7,166,112	14,053,478	50.99	3,577,612	4,314,486	79.25
United	125,172	75,751,000	127,306,000	59.50	768,483	524,744	1,468,358	10,030,570	18,851,535	53.21	3,595,521	3,945,304	87.34
Western	20,313	7,461,000	16,430,000	45.41	37,602	23,110	30,696	805,462	1,833,815	43.92	495,691	508,969	95.54
TOTALS	858,377	424,076,000	790,845,000	53.62	3,296,341	2,190,445	5,757,370	53,025,148	107,726,688	49.22	23,541,139	26,328,514	86.53

U. S. Domestic Airline Revenues & Expenses for January

Airlines	Total Operating Revenues	Passenger Revenues	Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income
American	$ 6,578,906	$ 5,528,290	$ 468,884	$ 147,561	$ 342,005	$ 73,733	$ 13,370	$ 6,934,675	$ 3,070,014	$ 3,864,661	$ -355,769
Braniff	935,649	696,315	174,278	22,581	16,924	5,162	17,750	1,149,539	566,245	583,294	-213,890
Capital	1,509,597	1,051,024	236,024	49,979	87,773	6,918	22,601	1,959,191	879,013	1,080,178	-449,594
Caribbean	68,396	47,806	15,997	. . . .	2,383	243	825	67,308	30,600	36,708	1,088
C & S	535,897	377,258	131,618	11,883	9,038	5,086	. . . .	612,795	249,100	363,695	-76,898
Colonial	258,707	170,552	83,051	1,425	1,769	1,886	. . . .	316,450	134,479	181,971	-57,743
Continental	327,491	198,623	108,972	2,769	4,752	1,753	7,388	441,864	197,916	243,948	-114,373
Delta	1,263,676	1,000,575	198,281	17,687	22,935	14,230	. . . .	1,225,079	550,115	674,964	38,597
Eastern	5,744,289	5,114,228	287,785	110,206	122,988	92,553	8,052	5,164,691	2,667,081	2,497,570	579,638
Hawaiian	318,929	280,403	2,327	9,994	17,804	7,673	390	284,648	115,004	169,644	34,281
Inland	178,091	118,369	52,962	2,252	2,029	883	1,000	167,388	63,551	103,837	10,703
NCA	485,245	325,245	143,597*	5,614	4,193	2,926	2,244	539,911	215,133	324,778	-54,666
National	1,168,850	996,033	116,151	14,671	16,012	21,798	1,382	1,014,441	534,973	479,468	154,409
Northeast	325,551	204,747	109,544	3,400	3,708	661	3,346	408,777	197,151	211,626	-83,226
Northwest	1,324,388	1,036,167	165,234	45,084	59,565	10,070	2,365	1,960,680	842,756	1,117,924	-636,292
TWA	3,975,234	3,169,195	424,824	132,696	150,482	42,244	24,124	4,790,191	2,268,968	2,521,223	-814,957
United	5,213,998	4,196,834	465,635	173,166	263,540	45,999	36,057	6,515,179	2,951,519	3,563,660	-1,301,181
Western	644,198	444,670	154,817	7,852	4,867	3,451	7,630	718,296	319,279	399,017	-74,098
TOTALS	30,857,092	24,956,334	3,339,981	758,820	1,132,767	337,269	148,524	34,271,063	15,852,897	18,418,166	-3,413,971

* Accrued on basis of Show Cause Order dated 2/17/49.

NOTE: These figures are taken from monthly reports filed by the airlines with CAB. The data are tentative and subject to later change.

U. S. International Airline Traffic for January

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	U. S. Mail Ton Miles	Foreign Mail Ton Miles	Express Ton Miles	Freight Ton Miles	Total Ton Miles Rev. Traffic	Available Ton Miles Flown	% Available Ton Miles Used	Revenue Plane Miles	Scheduled Miles	% Scheduled Miles Completed
American	6,864	5,376,000	8,929,000	60.21	8,660	2,495	. . . .	104,995	697,385	1,178,048	59.20	204,703	185,140	99.30
Amer. O'Seas	4,892	10,235,000	19,674,000	52.02	143,071*	57,220	347,915	. . . .	1,662,526	2,764,325	60.14	561,590	571,591	91.00
Braniff	627	1,162,000	4,150,000	28.90	823	239	. . . .	10,785	123,578	552,969	22.35	84,905	88,322	96.13
C & S	1,638	1,935,000	5,626,000	34.39	631*	246	. . . .	23,183	223,258	675,058	33.07	113,055	125,681	89.95
Colonial	873	692,000	2,751,000	25.15	634*	126	. . . .	4,695	80,859	403,653	20.03	62,514	66,682	93.75
Eastern	1,413	1,470,000	3,592,000	40.92	4,780*	. . . .	. . . .	48,590	214,115	409,770	52.25	64,480	64,480	100.00
National	3,564	1,064,000	2,081,000	51.13	980	. . . .	27,632	. . . .	136,895	309,401	44.25	45,433	35,836	97.43
Northwest	2,614	5,275,000	11,333,000	46.55	209,147	10,678	9,883	335,796	1,165,440	1,937,567	60.15	487,609	493,641	98.14
Panagra	7,334	8,675,000	16,250,000	53.37	29,738	19,587	118,090	26,827	1,136,224	2,369,795	47.54	493,497	506,016	96.35
Pan American Latin Amer.	59,952	46,355,000	92,345,000	50.20	225,000	66,783	1,408,711	11,059	6,349,684	13,158,150	48.26	2,535,629	2,532,414	99.83
Atlantic	6,858	17,936,000	30,316,000	59.16	190,340*	77,714	709,241	4,727	3,012,361	5,384,873	55.94	979,227	1,018,059	92.83
Pacific	6,476	19,345,000	33,985,000	56.92	448,231	63,951	410,240	. . . .	2,867,907	5,201,054	55.14	1,467,477	1,503,245	97.29
Alaska	2,534	2,876,000	5,753,000	49.99	34,410	. . . .	257,241	. . . .	590,481	978,007	60.38	187,845	198,726	91.64
TWA	5,297	16,948,000	33,992,000	49.86	200,118*	116,948	579,989	. . . .	2,809,028	4,728,402	59.41	1,008,158	957,326	99.22
United	2,122	5,013,000	6,628,000	75.63	67,380	. . . .	17,503	. . . .	610,150	749,831	81.37	154,433	148,800	100.00
TOTALS	113,058	144,357,000	277,405,000	52.03	1,563,945	415,987	3,886,445	570,657	21,679,891	40,820,903	53.10	8,450,555	8,495,959	97.13

* In addition to mail ton miles the following international parcel post ton miles were listed:
American Overseas -- not reported; C & S 96; Colonial 82; Eastern 112; PAA Atlantic Div. 25,298; TWA 39,581

NOTE: Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to Havana; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

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Airlines Report Officers' Salaries for 1948

The Civil Aeronautics Board has received Schedule E reports showing officers' and directors' salaries for the following airlines during calendar 1948:

United Air Lines: W. A. Patterson, pres. and dir., $62,500 (up $3,125); Harold Crary, v.p.-traffic, $18,500; J. A. Herlihy, v.p.-oper. and dir., $35,000; Ray W. Ireland, v.p.-administration, $30,000; Hal E. Nourse, v.p.-economic controls, $17,500; R. F. Ahrens, v.p.-personnel, $17,417 (up $917); D. F. Magarrell, v.p.-pass. service, $17,417 (up $917); S. P. Martin, secy., $11,958 (up $458); N. B. Haley, treas., $13,000; C. H. Blanchar, comptroller, $10,550 (up $550); M. C. Ansorage, dir., $1,000; Gardner Cowles, dir., $800; Justin W. Dart, dir., $700; Paul G. Hoffman, dir., $300; Eric Johnston, dir., $600; J. J. Mitchell, dir., $900.

NOTE: In addition to salaries listed above, the following amounts were received as bonuses and indirect compensation: Patterson, $5,230; Crary, $2,603; Herlihy, $2,418; Ireland, $3,390; Nourse, $1,338; Ahrens, $1,220; Magarrell, $1,067; Martin, $744; Haley, $1,967, and Blanchar, $476.

Chicago & Southern: Carleton Putnam, chm. of board of dir., $26,000; Sidney A. Stewart, pres. and dir., $25,417 (up $418); Junius H. Cooper, v.p., treas. and dir., $12,250 (minus $2,750); Richard S. Maurer, secy. and gen. counsel, $12,000 (up $750); T. F. Hambleton, asst. treas., $6,400 (up $3,828); R. S. Scrivener, asst. treas., $5,160 (up $60), and Erma Murray, asst. secy., $4,680 (up $80).

NOTE: In addition to salaries listed above, the following amounts were received as bonuses and indirect compensation: Putnam, $150; Stewart, $150; Cooper, $150; L. B. Billet, dir., $100, and John R. Longmire, dir., $50.

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WINGS OF YESTERDAY

25 Years Ago

On April 7, 1924 the Post Office Dept. invited American aircraft manufacturers to submit proposals and quote prices, in lots of three, 10, 25 and 50, for a mail plane to be built around the 400 hp Liberty engine.

•

At a conference at the Hague of the postal authorities of Great Britain, Holland, Germany, Denmark, Sweden, and Norway, it was decided to urge the creation of a through air mail service from Manchester to Petrograd via London, Amsterdam, Copenhagen, Malmoe and Stockholm.

10 Years Ago

(In AMERICAN AVIATION)

A bill authorizing the training under CAA sponsorship of 20,000 pilots was introduced by Rep. Clarence Lea, chairman of the House Committee on Interstate and Foreign Commerce. The bill, known as the "Civilian Pilot Training Act of 1939," asked for appropriation of $7,300,000.

•

Edward J. Noble resigned as chairman of CAA to become executive assistant to Secretary of Commerce Harry Hopkins. Robert Hinckley became new chairman of CAA.

•

Stephen A. Cisler, one-time superintendent of air mail service who played a leading role in development of that service, was planning to retire on May 1.

LETTERS

Too Hard on Refueling

To the Editor:

I was interested to read "Between the Lines" by James J. Haggerty, Jr., in the Mar. 15, 1949 issue of *American Aviation*. Although by no means disparaging the performance of 'Lucky Lady' II, your correspondent does appear to write down the potential possibilities of flight refuelling.

This round-the-world flight must be regarded to some extent in the nature of a stunt, although at the same time it must open the eyes of many to the possibilities inherent in flight refuelling. No one in his senses would dream of planning a bombing mission encircling the earth if it were necessary to lay down four tanker stations along the route; and up to this point I am in agreement with Mr. Haggerty, but I cannot go any further with him than this.

He first refers to the restricted altitude of 10,000 feet which, he states, has been imposed by the USAF. I am unable to comment on this, although during our own trials over the North and South Atlantic—which led up to the world flight—we refuelled regularly at 20,000 feet, and on occasions we have exceeded this height considerably. Since we used precisely the same equipment as was supplied to, and is now in use by the U. S. Air Force, there is no fundamental reason why they should not also operate at this altitude—and higher. Moreover, at the present time we are developing special pumps which will permit higher rates of flow at still greater altitudes, and in fact, we see no reason at all why refuelling should not take place at 40,000 feet.

Mr. Haggerty then gives the cruising radius of the B-50 as 2,300 miles and comes to the conclusion that the refuelled radius is therefore 4,600 miles. The reasoning here seems a little doubtful, unless the B-50 is to be refuelled half way to its target both on the way out and on the way home.

Further on, your correspondent deals with the high performance of the B-36, but he seems to have failed to put two and two together and thus to show the possible achievement by the B-36 when flight refuelled. For example, its unrefuelled radius of operation is somewhere in the neighborhood of 4,000 miles, but by refuelling at the optimum positions once on the way out and once on the way home, it has an effective radius of approximately 6,250 miles with a 30,000-lb. bomb load, or of 7,000 miles with a 10,000-lb. bomb load. If Mr. Haggerty will again examine his map of the world, even when over-run by the Russians as he suggests, I think he will still find that most, if not all, of his desired targets can be brought under fire.

In conclusion, I feel that Mr. Haggerty has applied far too restricted a perspective to the whole subject, and has not made scientific use of his imagination.

C. H. LATIMER-NEEDHAM
Chief Engineer,
Flight Refuelling Ltd.
Littlehampton, England

(Editor's Note: Comments are in order on three pertinent points: (1) The intent was not to write down the potential possibilities of flight refuelling as was pointed out in column 3, subhead "Not Belittling," which stated advantages of refuelling. Rather, the intent was to temper the Air Force's extravagant claims. (2) The official Air Force radius of action for a fully-fuelled B-50 is 2,300 miles, as stated. The assumption was that the B-50 would be refuelled at the perimeter of enemy-occupied territory, in which case its round-trip RANGE, to target and back to the perimeter, would be 4,600 miles. (3) There are, at present, no B-36's equipped for refuelling, and, as far as is known, there are no plans for same. In any event, the B-36 does not enter the previous argument, to wit that B-50's cannot reach any part of the world by refuelling, as per W. Stuart Symington in commenting on the flight of the Lucky Lady II.)

BOOKS

SEAPLANE FLYING AND OPERATIONS, by R. S. Fogg, W. D. Strohmeier, and D. J. Brimm, Jr., 213 pp. Illustrated. Pitman Publishing Corp., 2 W. 45th St., New York 19, N. Y. Price $3.75.

Because of the great increase in flying off water in the past few years, there has arisen a demand for an authoritative book dealing with the many new and important developments in design, handling techniques and utility of seaplanes. The authors of this book, all recognized as having broad knowledge of the subject, attempt to fill this need.

The book covers every phase of seaplane handling, including the art of taxiing and sailing taking off, flying cross-country, landing and docking. It discusses installation, maintenance, inspection and repair of floats, the problems involved in building seaplane ramps and docks, and practical suggestions on "How to Operate a Successful Seaplane Base." If you have anything to do with seaplanes, this book should have the answers to many of your questions.

THE AIR LEAGUE BOOK, published by The Foley House Press for the Air League of the British Empire. 96 pp., illustrated. Foley House Press, 31-36 Foley St., London, W.1. Price $2.50 (12s 6d).

The aim of the Air League in publishing this book is to bring before the public the knowledge of what civil and military aviation mean to Britain and the Empire, both from the point of view of security and of commerce, and to discuss the weaknesses and strengths of British aviation. There are 14 chapters, each written by an authority in his field, these covering everything from air reserves and the outlook for gliding to the British aircraft industry, air power and Imperial defense, and some thoughts on gas turbines.

ROCKET DEVELOPMENT, by Robert H. Goddard. Edited by Esther C. Goddard and G. Edward Pendray. Published by Prentice Hall, Inc., 70 5th Ave., New York 11. 290 pp., illustrated. $6.50.

This book contains much valuable information concerning rocket development. As an outstanding researcher in this field, Goddard kept extensive records of the experimental work performed over a period from 1929 thru 1941. His wife and associate Esther C. (Kisk) Goddard has initiated this work to make this valuable material available to the industry and public. It provides a chronological report of the experiments and their results over the entire period. It is well illustrated and provides a wealth of information on the entire field of rocket propulsion.

VELOCITY MODULATED THERMIONIC TUBES, by A. H. W. Beck. Published by the MacMillan Co., 60 5th Ave., New York, for the Cambridge University Press. 175 pp. $3.75.

Another in a new series titled Modern Radio Technique edited by J. A. Ratcliffe, this volume is devoted to general theory of the interchange of energy between field and beam together with the application of this theory to the various types of V. M. tubes. In addition some information on resonant cavities and heavy current electron beams is included. In the final chapters design requirements and limitations of this type of tube is covered.

CIVIL AIR REGULATIONS FOR PILOTS, by Charles A. Zweng and Allan C. Zweng. Published by Pan-American Navigation Service, 12021 Ventura Blvd., N. Hollywood, Calif. Revised to Nov. 1, 1948. 47 pages. Price $1.

This book is another of the Zweng series for airmen, but its usefulness over and above the repetition of government written and published Civil Air Regulations is limited. It is easier to handle but in content simply follows the regulations with very few exceptions. Many of the regulations could, perhaps, have been simplified by use of illustrations showing application of the written word. Included in the coverage are CAR parts 01, 20, 21, 43, 49, 60, 98, 501 and 503.

PRIVATE PILOT TRAINING, compiled and edited under supervision of Harold E. Baughman and Iris C. Critchell. Published by Aviation Sales Corp., Los Angeles, Calif. Price $4. 374 pp., illustrated.

This book provides an interesting coverage of the material necessary for securing a private pilot's certificate and will also prove valuable for persons other than pilots who are interested in flight matters. The paperbound text covers the ground school curriculum outlined by CAM 50 and includes illustrations which serve to simplify the presentation. Subjects covered are CAR, air navigation meteorology radio general servicing of aircraft and theory of flight.

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